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 PERMIT

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

October 4, 1989

Enclosed is construction permit No. AC 05-158235 for the installation of a new Binks dry type paint spray booth and a Dayton grit blast unit in Hangar N at the Cape Canaveral AF Station in Brevard County, Florida. This permit is issued pursuant to Section 403, Florida Statutes.

Any party to this permit has the right to seek judicial review of the permit 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 this permit is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

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

Copy furnished to:

C. Collins, Central District
M. Busacca, KSC

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 10-5-89.

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.

Kym Jobes — Clerk

10-5-89 — Date

Final Determination

National Aeronautics and Space Administration
Cape Canaveral Air Force Station
Kennedy Space Center, Florida
Brevard County

Construction Permit Number:
AC 05-158235

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

September 28, 1989

Final Determination

The construction permit application has been reviewed by the Department. Public Notice of the Department's Intent to Issue was published in the Florida Today on August 4, 1989. The Technical Evaluation and Preliminary Determination were available for public inspection at the DER's Central District office and Bureau of Air Regulation office.

There were no comments received on the proposed action. Therefore, it is recommended that the proposed construction permit be issued as drafted.

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

Permit Number: AC 05-158235
Expiration Date: Dec. 31, 1990
County: Brevard
Latitude/Longitude: 28°19'16"N 80°35'18"W
Project: Paint Spray Booth and Grit Blast Unit

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code (F.A.C.) 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/installation of a Binks dry type paint spray booth and a Dayton grit blast unit, each with associated control systems, in Hangar N at the Cape Canaveral AF Station to refurbish ground support equipment. The UTM coordinates are Zone 17, 540.3 km East and 3151.0 km North.

The Standard Classification Codes are:

1. Paint Spray Booth
   - o 4-90-002-99 waste solvent recovery (tons reclaimed solvent)
   - o 4-02-001-10 paint: solvent base (gallons of coating)
   - o 4-02-006-10 primer (gallons of coating)
   - o 4-02-025-99 surface coating miscellaneous metal parts (tons of solvent in coating)
   - o 4-02-999-98 organic solvent evaporation surface coating (gallons)
2. Grit Blast Unit
   - o 3-09-002-01 aluminum oxide abrasive (tons abrasive consumed)

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 Sources, DER Form 17-1.122(16), received December 5, 1988.
2. Mr. C. H. Fancy's letter dated January 3, 1989.
3. Mr. James D. Phillip's letter with enclosure received March 13, 1989.
4. Technical Evaluation and Preliminary Determination dated April 11, 1989.

PERMITTEE:
NASA

Permit No. AC 05-158235
Expiration Date: Dec. 31, 1990

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

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. Nor 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 does not constitute 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, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, 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 at all times 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, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

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

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

c. Sampling or monitoring 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 notify and provide the Department with the following information:

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

b. the period of noncompliance, including exact 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 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 arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

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 17-4.12 and 17-30.30, 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 is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. The permittee shall comply with the following monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

b. The permittee shall retain 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), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

GENERAL CONDITIONS:

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 date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

14. 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 submitted or corrected promptly.

SPECIFIC CONDITIONS:

A. Hangar N

1. Permitted hours of operation are 16 hrs/day, 5 days/wk, and 52 wks/year.

2. Waste paints, thinners, solvents, and solid film lubricant chemicals shall be collected, properly sealed/covered, quantified, and transported to a federally permitted hazardous waste receiving facility.

3. Objectionable odors shall not be allowed off plant property.

4. A material balance scheme shall be employed to assess the annual emissions of volatile organic compounds/organic solvents (VOC/OS) from Hangar N operations and include the following:

a. Initial inventory of all VOC/OS;
b. Deliveries of all VOC/OS material after the initial inventory;
c. Collected and shipped-out waste VOC/OS after the initial inventory;
d. Ending inventory of all VOC/OS (12 calendar months after the initial inventory); and,
e. Emissions must be verifiable on a monthly basis.

Note: It will be assumed that any VOC/OS used and not accounted for by the collection and shipping-out of waste VOC/OS were emitted into the atmosphere.

SPECIFIC CONDITIONS:

5. Maximum VOC/OS emissions shall not exceed 633 lbs/mth and 3.8 TPY.

6. The operations are subject to the provisions of F.A.C. Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; and, 17-4.130: Plant Operations-Problems.

7. Reasonable precautions shall be used to minimize fugitive and unconfined emissions of particulate matter (PM) and VOC/OS. Reasonable precautions include the use of tightly fitting lids/covers on all VOC/OS containers, storage of clean-up materials (rags, mops, etc.) in covered containers, minimizing air drafts across open containers of VOC/OS, and the immediate removal of any dust piles associated with operations.

8. The annual operating report (DER Form 17-1.202(6)) shall contain the quantified emissions of VOC/OS from all operations and is to be based on the material balance scheme.

9. Projected potential fugitive pollutant emissions for PSD tracking are:

o VOC/OS: 2.0 TPY o PM: 0.03 TPY

B. Paint Spray Booth

1. Filters controlling PM emissions and VE shall be used and properly maintained.

2. Visible emissions (VE) shall not exceed 5% opacity (no VE).

3. Initial and annual VE compliance tests shall be conducted using EPA Reference Method 9 in accordance with F.A.C. Rule 17-2.700(6)(b)9. and 40 CFR 60, Appendix A.

4. Projected potential pollutant emissions for PSD tracking are: o PM: 0.03 TPY

5. A PM mass emission limiting standard and mass compliance test was not imposed by the Department at this time pursuant to F.A.C. Rule 17-4.040(1)(b). A violation of the VE standard will initiate review by the Department and the imposition of a PM mass emissions limiting standard and compliance tests using EPA Reference Method 5 in accordance with F.A.C Rule 17-2.700 and 40 CFR 60, Appendix A.

6. A manometer shall be installed and the pressure drop established to assure proper filter maintenance and PM collection/control.

SPECIFIC CONDITIONS:

7. VOC/OS emissions shall be included in the material balance scheme required for Hangar N under Section A, No. 4, of the Specific Conditons.

C. Grit Blast Unit

1. At this time, there will not be any VE or PM mass emission limiting standards imposed pursuant to F.A.C. Rule 17-4.040(1)(b), Exemptions. With probable cause (excessive visible emissions), the Department shall reevaluate this exemption.

2. The integrity of the ULPA filters shall be properly maintained. The Department shall be notified if a change in filter type is being considered.

3. Projected potential pollutant emissions for PSD tracking are: o PM: 0.001 TPY

D. General

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

2. 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 conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rule 17-4.220).

Issued this 2 day
of October, 1989

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Dale Twachtmann, Secretary

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: September 28, 1989

SUBJ: Approval of Construction Permit No. AC 05-158235
NASA - Kennedy Space Center

Attached for your approval and signature is a permit for the above mentioned company to construct/install a new Binks dry type paint spray booth and a Dayton grit blast unit, each with associated control systems, in Hangar N to refurbish ground support equipment at the Cape Canaveral AF Station located in Brevard County, Florida.

Day 90, after which the permit will be issued by default, is December 12, 1989.

I recommend your approval and signature.

SS/BM/t

attachments

BEST AVAILABLE COPY

CAPE PUBLICATIONS, INC.

The Times
Published Weekly on Wednesday

THE TRIBUNE
Published Weekly on Wednesday

FLORIDA TODAY
Published Daily

RECEIVED
SEP 25 1989
DER - BAQM

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 Order No. CC-55382B; permit to NASA in the Court

was published in the **FLORIDA TODAY NEWSPAPER** in the issues of August 4,1989

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 4th day of August A.D. 19 89

Notary Public
State of Florida at Large
My Commission Expires March 29, 1991

cc: Bruce Mitchell 9-25-89 RAM

Please return this w/cert

File Copy

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 NASA, John F. Kennedy Space Center, Kennedy Space Center, Florida 32899, to construct/install a new Binks dry type paint spray booth and Dayton grit blast unit, each with associated control systems, in Hangar N to refurbish ground support equipment at the Cape Canaveral AF Station in Brevard County, Florida. A determination of Best Available Control Technology (BACT) was not 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.

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 application 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 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.
TM097142-1T-8/4, 1989, Friday

9/22/89

Mr. Mitchell:

This is a copy of the advertisement for permit # AC05-158235 that we spoke about on 9/22/89.

Sandra

Sandra

RECEIVED

SEP 25 1989

DER - BAQM

National Aeronautics and
Space Administration

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

OFFICIAL BUSINESS
Penalty for Private Use $300
MAIL CODE DF-EMS

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PM
23 SEP
1989

Begin an Active
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National Aeronautics
and Space Administration
NASA-451

Florida Dept. of Environmental Regulation
Attn: Mr. Bruce Mitchell - Room 310D
2600 Blair Stone Road
Tallahassee, FL 32399-2400

NASA

KSC FORM 1-28 (REV. 2/88)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
ORDER FOR SUPPLIES OR SERVICES
(Continuation Sheet)

ISSUED BY: SI-PRO-63

ORDER NO.: CC-56282B

CONTRACTOR: Florida Today

CONTRACT NO.:

SCHEDULE OF SUPPLIES AND SERVICES

ITEM NO.	DESCRIPTION	QUANTITY (NO. OF UNITS)	UNIT	UNIT PRICE	AMOUNT	QUANTITY ACCEPTED
	MR 892513(F)				NOT-TO-EXCEED	
1.	Contractor to publish Attachment II "Notice of Proposed Agency Action" on a One Time Only Basis. No variation in the copy is allowed by the Florida Dept. of Environmental Regulation. This requirement is in accordance with FAC Rule 17-30.22. Publisher is required to send a copy of an affidavit of publication to the Dept. of Environmental Regulation immediately after publication of announcement to the following address: Florida Dept. of Environmental Regulation Attn: Mr. Bill Thomas 2600 Blair Stone Rd. Tallahassee, FL 32399-2400	15	inch	$13.54	$210.00	

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: File - Kennedy Space Center: AC 05-158235

FROM: Bruce Mitchell

DATE: June 6, 1989 - @ 9:49 a.m.

SUBJ: Receipt of Technical Evaluation and Preliminary (TE & PD) Determination Dated April 11, 1989

I spoke with Mr. Mario Busacca with KSC about the TE & PD package and he said that the package had not yet been received. Consequently, another copy of the package is being sent certified to Mr. Busacca and one to Mr. James Phillips, Director of Engineering Development (KSC).

BM/ks

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:
Mr. James D. Phillips
Director, Engineering Dev.
NASA
John F. Kennedy Space Center
Kennedy Space Center, FL 32899

4. Article Number
P 274 010 399

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 [signature]

7. Date of Delivery
8904 13

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**

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:
Mr. James D. Phillips
Director, Engineering Development
NASA
John F. Kennedy Space Center
Kennedy Space Center, FL 32899

4. Article Number
P 938 762 585

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 [signature]

7. Date of Delivery
6-8-89

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**

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:
Mr. Mario Busacca
NASA
John F. Kennedy Space Center
Kennedy Space Center, FL 32899

4. Article Number
P 938 762 586

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 [signature]

7. Date of Delivery
6-8-89

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 274 010 399

RECEIPT FOR CERTIFIED MAIL

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

Sent to Mr. James D.Phillips, NASA	
Street and No. John F. 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: 4-11-89 Permit: AC 05-158235	

PS Form 3800, June 1985 * U.S.G.P.O. 1985-480-794

P 938 762 585

RECEIPT FOR CERTIFIED MAIL

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

Sent to Mr. James D. Phillips	
Street and No. NASA	
P.O., State and ZIP Code Kennedy Space Center, FL 32899	
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: 6-6-89 Permit: AC 05-158235	

PS Form 3800, June 1985

P 938 762 586

RECEIPT FOR CERTIFIED MAIL

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

Sent to Mr. Mario Busacca, NASA	
Street and No.	
P.O., State and ZIP Code Kennedy Space Center, FL 32899	
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: 6-6-89 Permit: AC 05-158235	

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

April 11, 1989

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. James D. Phillips
Director, Engineering Development
NASA
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 NASA to construct/install a new Binks dry type paint spray booth and Dayton grit blast unit, each with associated control systems, in Hangar N to refurbish ground support equipment at the Cape Canaveral AF Station located in Brevard County, Florida.

Please submit any written comments you wish to have considered concerning the Department'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/ks

Attachments

cc: C. Collins, CF District
M. Busacca, KSC
Reading File
Bruce Mitchell } 4-11-89 BRM

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of
Application for Permit by:

NASA
John F. Kennedy Space Center
Kennedy Space Center, FL 32899

DER File No. AC 05-158235

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 December 5, 1988, to the Department of Environmental Regulation for a permit to construct/install a new Binks dry type paint spray booth and Dayton grit blast unit, each with associated control systems, in Hangar N to refurbish ground support equipment at the Cape Canaveral AF Station located in 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:

J. D. Phillips, KSC
C. Collins, CF District
M. Busacca, KSC

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 April 11, 1989.

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.

Kathy C. Carter
Clerk

4.11.89
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 NASA, John F. Kennedy Space Center, Kennedy Space Center, Florida 32899, to construct/install a new Binks dry type paint spray booth and Dayton grit blast unit, each with associated control systems, in Hangar N to refurbish ground support equipment at the Cape Canaveral AF Station located in Brevard County, Florida. A determination of Best Available Control Technology (BACT) was not 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.

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 application 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 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

National Aeronautics and Space Administration
Cape Canaveral Air Force Station
Kennedy Space Center, Florida
Brevard County

State Construction Permit Number:
AC 05-158235

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

April 11, 1989

I. Application

A. Applicant

NASA
John F. Kennedy Space Center
Cape Canaveral AF Station
Kennedy Space Center, FL 32899

B. Project and Location

The applicant proposes to construct/install a new Binks dry type paint spray booth and a Dayton grit blast unit, each with associated control systems, in Hangar N to refurbish ground support equipment at the Cape Canaveral AF Station located in Brevard County, Florida.

The UTM coordinates are Zone 17, 540.3 km East and 3151.0 km North.

C. Process and Controls

The two processes involved are the solid film lubricant (Lube-Lok) application process and the ground support equipment (GSE) maintenance process.

The solid film lubricant process involves various component cleaning processes using volatile organic compound/organic solvents, grit, and alkaline material. Solvent cleaning of the components is performed under a local ventilation system in Room 105. After cleaning, the components are coated and oven-cured. Coating of components are performed in a paint booth, which contains paint filters for controlling particulate matter (PM) emissions and visible emissions (VE). The curing ovens are totally enclosed and are without vents. Solvent clean-up of the spray equipment will occur within the paint booth.

The GSE maintenance process consists of priming and painting fifty (50) units of GSE on an annual basis. All priming and painting will be performed inside a ventilated paint booth, which is the same paint booth that will be used for applying coats of Lube-Lok in the solid film lubricant process.

Hazardous wastes generated from both processes will be collected in 55 gallon drums and will be segregated based on chemical compatibility. Quantification will be required as part of a material balance scheme to determine compliance with volatile organic compounds organic solvents (VOC/OS) allowable emissions.

The Standard Classification Codes are:

1. Paint Booth

o 4-90-002-99	waste solvent recovery (tons reclaimed solvent)
o 4-02-999-98	organic solvent evaporation surface coating (gallons)
o 4-02-025-99	surface coating of miscellaneous metal parts (tons solvent in coating)
o 4-02-001-10	paint: solvent base (gallons of coating)
o 4-02-006-10	primer (gallons of coating)

2. Grit Blast Unit

o 3-09-002-01	aluminum oxide abrasive (tons abrasive consumed)

II. Rule Applicability

The proposed project is subject to preconstruction review in accordance with Chapter 403, Florida Statutes, and Florida Administrative Code (F.A.C.) Chapters 17-2 and 17-4.

The application package was deemed complete on March 13, 1989.

The existing facility is located in an area designated attainment for all of the criteria pollutants.

The following table will exhibit the potential pollutant emissions in tons per year (TPY) projected for the proposed project:

Table 1

Source	Projected Potential Pollutant Emissions (TPY) VOC	PM
Paint Spray Booth	1.8	0.034
Fugitive from Hanger N	2.0	0.03
Grit Blast Booth		0.001
Total	3.8	0.065

Note: Pollutant emissions are based on refurbishment of 48 solid rocket booster units (24 flights with two per flight used) per year.

Since the total permitted VOC/OS emissions from the solid rocket booster facility (SRBF) and Kennedy Space Center (KSC) are 125 TPY, the proposal will be a minor modification to a major facility. Since the facility is not listed in Table 500-1, F.A.C. Chapter 17-2, the threshold for triggering new source review is 250 TPY. Therefore, the proposed VOC/OS potential emissions will be subject to review in accordance with F.A.C. Rule 17-2.520, Sources Not Subject to PSD or Nonattainment Requirements.

The VOC/OS emissions from the SRBF refurbishing operations will be permitted in accordance with F.A.C. Rule 17-2.620(1) and (2). Pursuant to F.A.C. Rule 17-2.620(1), the VOC/OS emissions from the solid film lubricant process and ground support equipment maintenance process, which includes the paint spray booth operations, will be accounted for using a material balance scheme and includes the following:

a) Beginning/initial inventory of all VOC/OS;
b) Plus, all deliveries of VOC/OS after the initial inventory;
c) Minus, all quantified VOC/OS material recycled and/or sent off premise as waste/hazardous waste;
d) Minus a final inventory, which should occur 12 calendar months after the initial inventory; and,
e) Emissions must be verifiable on a monthly basis.

Note: It will be assumed that the net difference is the annual amount of VOC/OS emissions being released into the atmosphere.

The results of the material balance scheme shall be submitted on the Annual Operating Form, DER Form 17-1.202(6). The report is to be submitted to the DER's Central Florida District office.

Pursuant to F.A.C. Rule 17-2.620(2), objectionable odors shall not be allowed off plant property.

PM emissions from the paint spray booth operations will be minimized using filters with an estimated efficiency of 95%. Because the potential PM emissions are considered negligible, the Department will impose a visible emission standard of 5% opacity (no visible emissions), not to be exceeded, as reasonable assurance that the filtration system is operating properly pursuant to F.A.C. Rule 17-4.040(1)(b). Initial and annual compliance tests using EPA Reference Method 9 in accordance with F.A.C. Rule 17-2.700(6)(b)9. and 40 CFR 60, Appendix A, shall be required.

Since the potential PM emissions from the grit blast unit operations are considered negligible and do not vent into the atmosphere, the Department does not feel justified to impose any emission limiting standards at this time pursuant to F.A.C. Rule 17-4.040, Exemptions. The grit blast unit will be using an associated PM control system that will employ ULPA filters having a PM collection/retention efficiency of 99.9995% at 0.12 microns.

The proposed operations are subject to the provisions of F.A.C. Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; and, 17-4.130: Plant Operations-Problems.

III. Summary of Emissions and Air Quality Analysis

A. Emission Limitations

Limitations for PM, VOC/OS, and VE are applicable to various sources/operations at the facility and follows:

Table 2

Source		Emission Limitations
Paint Spray Booth	VE	not greater than 5% opacity
	VOC/OS	material balance scheme (included under Hanger N)
Hangar N	VOC/OS	material balance scheme: 633 lbs/mth and 3.8 TPY

The grit blast unit operations will be exempted from emission limitations due to its projected potential pollutant emissions and assumed negligible impact on the environment. Any change in the proposed operations of this unit will require notification to the Department.

B. Air Quality Analysis

From a review of the application package, an air quality analysis was not required.

IV. Conclusion

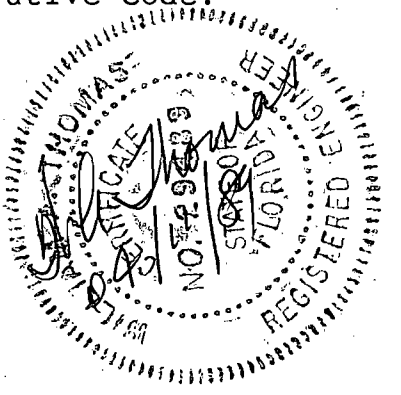
The use of ULPA filters to control both PM and visible emissions from the grit blast unit operations is such that the Department will not impose any emission limitations at this time. Proper operation of this unit will maintain the exemption status.

The use and proper maintenance of the proposed filters associated with the paint spray booth operations should provide excellent PM and visible emissions control. Since the potential PM emissions are considered negligible, the Department will impose a VE standard as a means of assuring proper operation and maintenance of the paint spray booth operations. Continual violations will require Departmental review of the exemption and the potential imposition of a PM mass emission limiting standard and EPA Reference Method 5 compliance tests.

Unconfined and fugitive PM and VOC/OS emissions from Hangar N should be minimal and not cause an impact on the environment.

The employment of a material balance scheme, verifiable on a monthly basis, is an acceptable means to assess the VOC/OS annual emissions from Hangar N.

Based on the information provided by NASA, the Department has reasonable assurance that the proposed construction/installation of a new paint spray booth and grit blasting unit, 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:
National Aeronautics and
Space Administration
John F. Kennedy Space Center
Kennedy Space Center, FL
32899

Permit Number: AC 05-158235
Expiration Date: Dec. 31, 1990
County: Brevard
Latitude/Longitude: 28°19'16"N
80°35'18"W
Project: Paint Spray Booth and
Grit Blast Unit

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code (F.A.C.) 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/installation of a Binks dry type paint spray booth and a Dayton grit blast unit, each with associated control systems, in Hangar N at the Cape Canaveral AF Station to refurbish ground support equipment. The UTM coordinates are Zone 17, 540.3 km East and 3151.0 km North.

The Standard Classification Codes are:

1. Paint Spray Booth
   - o 4-90-002-99 waste solvent recovery (tons reclaimed solvent)
   - o 4-02-001-10 paint: solvent base (gallons of coating)
   - o 4-02-006-10 primer (gallons of coating)
   - o 4-02-025-99 surface coating miscellaneous metal parts (tons of solvent in coating)
   - o 4-02-999-98 organic solvent evaporation surface coating (gallons)
2. Grit Blast Unit
   - o 3-09-002-01 aluminum oxide abrasive (tons abrasive consumed)

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 Sources, DER Form 17-1.122(16), received December 5, 1988.
2. Mr. C. H. Fancy's letter dated January 3, 1989.
3. Mr. James D. Phillip's letter with enclosure received March 13, 1989.
4. Technical Evaluation and Preliminary Determination dated April 11, 1989.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants or representatives.

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. Nor 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 does not constitute 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, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, 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 at all times 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, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

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

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

c. Sampling or monitoring 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 notify and provide the Department with the following information:

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

b. the period of noncompliance, including exact 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 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 arising under the Florida Statutes or Department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.

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 17-4.12 and 17-30.30, 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 is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

13. This permit also constitutes:

( ) 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 monitoring and record keeping requirements:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the Department, during the course of any unresolved enforcement action.

GENERAL CONDITIONS:

b. The permittee shall retain 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), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be 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 date(s) 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 submitted or corrected promptly.

SPECIFIC CONDITIONS:

A. Hangar N

1. Permitted hours of operation are 16 hrs/day, 5 days/wk, and 52 wks/year.

2. Waste paints, thinners, solvents, and solid film lubricant chemicals shall be collected, properly sealed/covered, quantified, and transported to a federally permitted hazardous waste receiving facility.

3. Objectionable odors shall not be allowed off plant property.

4. A material balance scheme shall be employed to assess the annual emissions of volatile organic compounds/organic solvents (VOC/OS) from Hangar N operations and include the following:

a. Initial inventory of all VOC/OS;
b. Deliveries of all VOC/OS material after the initial inventory;

SPECIFIC CONDITIONS:

c. Collected and shipped-out waste VOC/OS after the initial inventory;
d. Ending inventory of all VOC/OS (12 calendar months after the initial inventory); and,
e. Emissions must be verifiable on a monthly basis.

Note: It will be assumed that any VOC/OS used and not accounted for by the collection and shipping-out of waste VOC/OS were emitted into the atmosphere.

5. Maximum VOC/OS emissions shall not exceed 633 lbs/mth and 3.8 TPY.

6. The operations are subject ot the provisions of F.A.C. Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; and, 17-4.130: Plant Operations-Problems.

7. Reasonable precautions shall be used to minimize fugitive and unconfined emissions of particulate matter (PM) and VOC/OS. Reasonable precautions include the use of tightly fitting lids/covers on all VOC/OS containers, storage of clean-up materials (rags, mops, etc.) in covered containers, minimizing air drafts across open containers of VOC/OS, and the immediate removal of any dust piles associated with operations.

8. The annual operating report (DER Form 17-1.202(6)) shall contain the quantified emissions of VOC/OS from all operations and is to be based on the material balance scheme.

9. Projected potential fugitive pollutant emissions for PSD tracking are:

o VOC/OS: 2.0 TPY o PM: 0.03 TPY

B. Paint Spray Booth

1. Filters controlling PM emissions and VE shall be used and properly maintained.

2. Visible emissions (VE) shall not exceed 5% opacity (no VE).

3. Initial and annual VE compliance tests shall be conducted using EPA Reference Method 9 in accordance with F.A.C. Rule 17-2.700(6)(b)9. and 40 CFR 60, Appendix A.

4. Projected potential pollutant emissions for PSD tracking are: o PM: 0.03 TPY

SPECIFIC CONDITIONS:

5. A PM mass emission limiting standard and mass compliance test was not imposed by the Department at this time pursuant to F.A.C. Rule 17-4.040(1)(b). A violation of the VE standard will initiate review by the Department and the imposition of a PM mass emissions limiting standard and compliance tests using EPA Reference Method 5 in accordance with F.A.C Rule 17-2.700 and 40 CFR 60, Appendix A.

6. A manometer shall be installed and the pressure drop established to assure proper filter maintenance and PM collection/control.

7. VOC/OS emissions shall be included in the material balance scheme required for Hangar N under Section A, No. 4, of the Specific Conditons.

C. Grit Blast Unit

1. At this time, there will not be any VE or PM mass emission limiting standards imposed pursuant to F.A.C. Rule 17-4.040(1)(b). With probable cause (excessive visible emissions), the Department shall reevaluate this exemption.

2. The integrity of the ULPA filters shall be properly maintained. The Department shall be notified if a change in filter type is being considered.

3. Projected potential pollutant emissions for PSD tracking are: o PM: 0.001 TPY

D. General

1. 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. Rule 17-4.090).

2. 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 conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rule 17-4.220).

PERMITTEE:
NASA

Permit No. AC 05-15823
Expiration Date: Dec. 31, 1990

Issued this _____ day
of _____, 1989

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

_____
Dale Twachtmann, Secretary

ATTACHMENTS AVAILABLE UPON REQUEST

National Aeronautics and
Space Administration

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

file copy NASA

Reply to Attn of DF-EMS

Florida Dept. of Environmental Regulation
Attn: Mr. Clair Fancy
2600 Blair Stone Road
Tallahassee, FL

Subject: Completeness Review for Application Package to Construct Permit No. AC05-158235

In response to your letter dated January 3, 1989, same subject, the following information is submitted:

1. Telephone conversation between Mario Busacca of my staff and Bruce Mitchell of the Department determined that an application fee is not necessary.

2. It is estimated that 99% of the VOCs from the dry film lubricants will be emitted in the spray booth and exhausted during application and ambient cure. Components will be allowed to cure in the spray booth for 30-120 minutes after completion of spraying. The purpose of the high temperature oven is not to drive off the volatile compounds but rather to glassify (fuse) the solid film lubricant onto the solid rocket booster components.

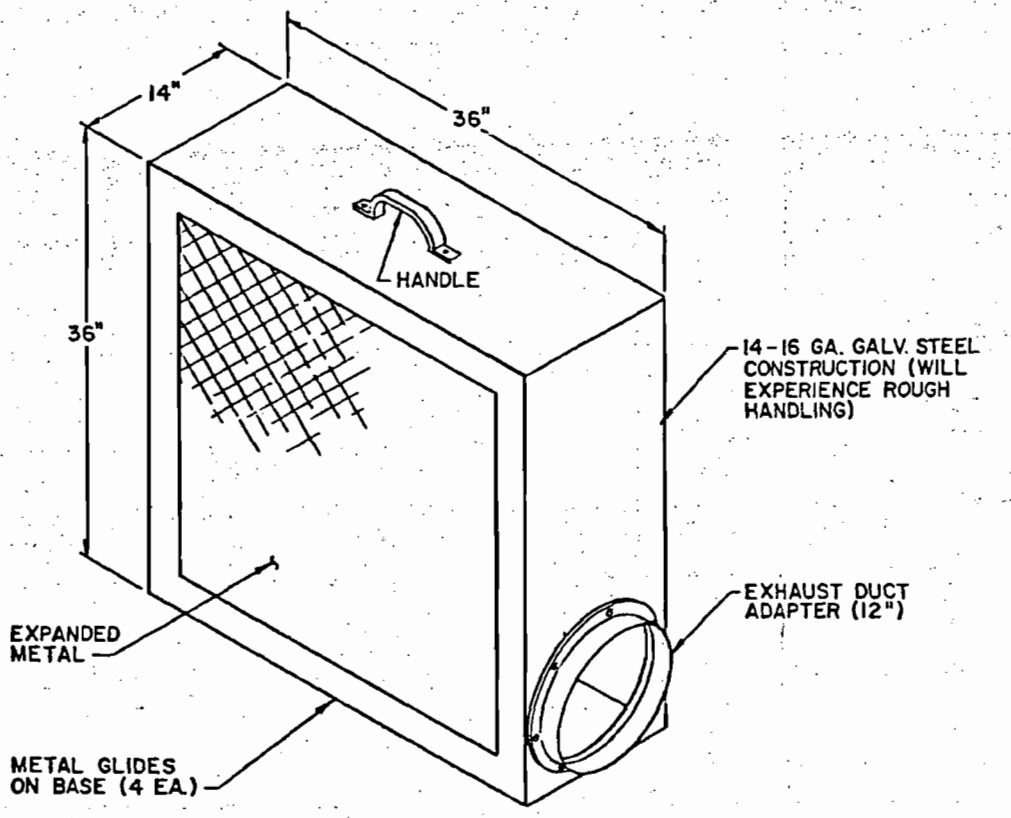
3. The cure oven opens into the high bay of Hangar N. This is an area of approximately 479,360 cubic feet. Although this area is not mechanically ventilated, any remaining vapors which would be released upon opening the cure oven door will be immediately diluted. As stated in the above response, there will be little if any VOCs on the hardware when they enter the oven.

4. The isopropanol burnished coat is applied to the components on a work bench in Room 105 which is fitted with an exhaust cabinet (see attached sketch #1). There will be two identical exhaust cabinets which are connected to a single exhaust fan (see sketch #2). The exhaust fan is rated at 2000 CFM (1000 CFM/cabinet). Vapors will be discharged through a 14" diameter stack approximately 20 feet from ground level.

James D. Phillips
Director Engineering Development

Enclosure
copied: B. Mitchell
C. Collins
CNF/13T

SKETCH #1



EXHAUST FUME CABINET

NOT TO SCALE

UNITED TECHNOLOGIES
USBI Booster Production Company, Inc.

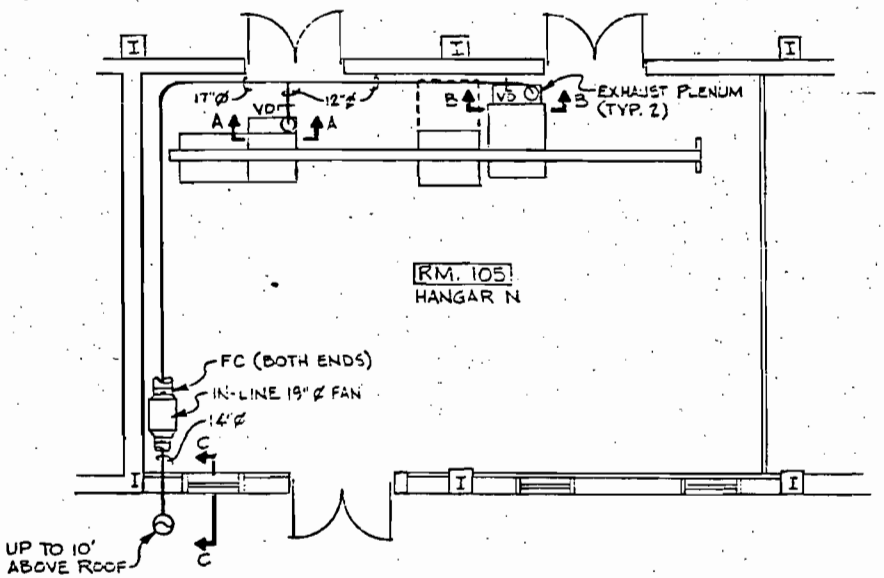
DRAWN BY	DATE 5-8-87	FACILITIES ENGINEERING DRAWING NO 0060	REPORT NO 115
CHECKED BY	DATE		
APPROVED BY	DATE 5-9-87	REVISIONS	SHEET 1 OF 1
SCALE NOT TO SCALE			

PROJECT
SOLID ROCKET BOOSTER ASSEMBLY AND REFURBISHMENT FACILITY

SHEET TITLE
EXHAUST FUME CABINET FOR ROSS MIXER

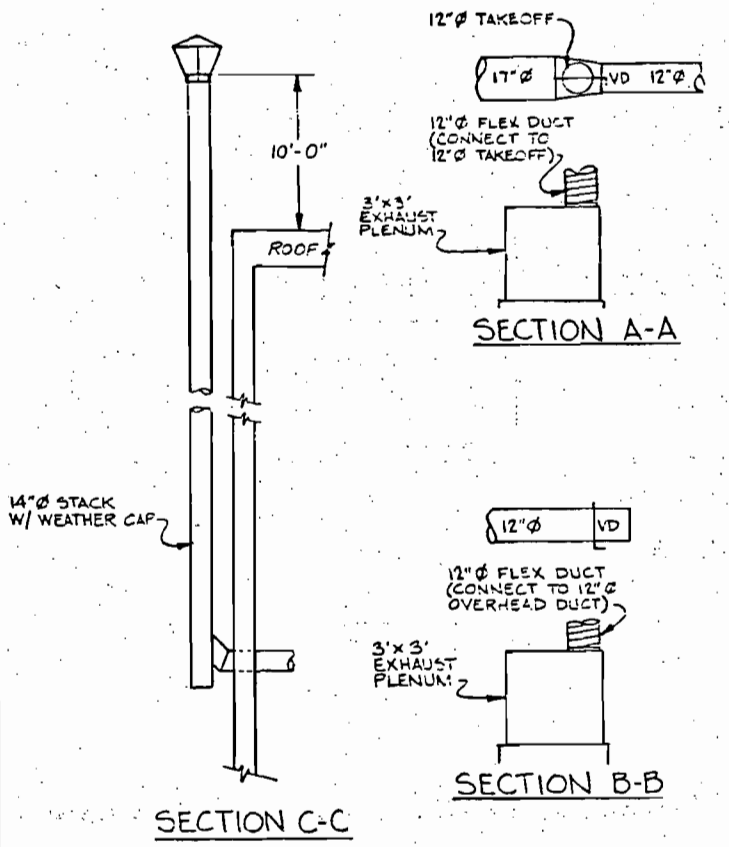
EPC 5432 (88/12)

SKETCH #2



RM. 105 VENTILATION – HANGAR N

NOT TO SCALE



DETAILS

NOT TO SCALE

UNITED TECHNOLOGIES
USBI Booster Production Company, Inc.

DRAWN BY	DATE 11-9-89	FACILITIES ENGINEERING DRAWING NO. 0186	REPORT NO. FER-403
CHECKED BY	DATE	APPROVED BY	DATE 11-9-89
SCALE NOT TO SCALE	REVISIONS	SHEET 1 OF 1	

PROJECT
SOLID ROCKET BOOSTER ASSEMBLY
AND REFURBISHMENT FACILITY

SHEET TITLE
RM. 105 VENTILATION
HANGAR N

BPC 5492 (86/12)

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. Development
NASA
Kennedy Space Center, FL 32899

4. Article Number
P 274 007 550

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 William K. Murray

7. Date of Delivery
6 Jan 89

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 274 007 550

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

Sent to James D. Phillips Dir. of Eng. Development Street and No. NASA P.O. State and ZIP Code Kennedy Space Center, FL 32899	
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 AC 05-158235 mailed: 1/3/89	

★ U.S.G.P.O. 1985-480-794
PS Form 3800, June 1985

Main 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

January 3, 1989

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. James D. Phillips
Director of Engineering Development
National Aeronautics and Space Administration
Kennedy Space Center, Florida 32899

Dear Mr. Phillips:

Re: Completeness Review for Application Package to Construct No. AC 05-158235

The Department received the above referenced application package to construct a new paint spray booth and a grit blasting booth. Based on a review of the application package, it is deemed incomplete. Therefore, please submit to the DER's Bureau of Air Quality Management the following information, including all calculations, assumptions and reference material, and the status will, again, be ascertained:

1-4-89 01:05 spoke @ M. Busacca. Retracted this requirement. RAR

1. Since there are two (2) air pollution sources (paint spray booth and grit blasting booth) contained in one application package, the appropriate processing fee is $200.00 per source for a total of $400.00. Please remit the amount of $200.00, since only $200.00 has been received by the Department.

2. Since the curing oven is not vented, are all of the air pollutants emitted during the curing cycle completely destroyed? If not, please explain.

3. Describe the area where the curing oven is opened into and accessed and is this area ventilated? If the area is ventilated, please describe.

4. Are the burnish top coats of isopropanol applied on the components under the local ventilation unit in Room 105? If not, please describe the application area for the top coats in Room 105? Please describe the local ventilation unit in Room 105.

If there are any questions, please call Bruce Mitchell at (904)488-1344 or write to me at the above address.

Sincerely,

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

CHF/BM/s

cc: C. Collins, CFD
M. Busacca, KSC
B. Hewitt, Esq., DER
Reading File
Bruce Mitchell } 1-5-89 AA

National Aeronautics and
Space Administration

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

NASA

Reply to Attn of DF-EMS

DEC 0 2 1988

Florida Dept. of Environmental Regulation
Attn: Mr. Clair Fancy, Deputy Chief
Bureau of Air Quality
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Permit Application for Construction of a Space Shuttle Booster Refurbishment Facility - Kennedy Space Center

A permit application for construction of the subject facility is hereby submitted for approval. Also enclosed is a $200 check for permit fees.

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

James D. Phillips
Director of Engineering Development

Enclosures

RECEIVED
DER - MAIL ROOM

1988 DEC -5 AM 10:59

UNITED TECHNOLOGIES USBI

74-1292
724

CHECK NO. 00048637

048637

TWO HUNDRED DOLLARS NO CENTS

PAY TO THE ORDER OF

FLORIDA DEPT. OF ENVIRONMENTAL REGULATION
3319 MAGUIRE BOULEVARD
ORLANDO, FL. 32803

DATE 10-28-88

CHECK AMOUNT *******200.00

AUTHORIZED SIGNATURE

AUTHORIZED COUNTERSIGNATURE

EARBORN BANK, N.A.
ODWARD, DETROIT, MICHIGAN 48226

USBI
OPERATION ACCOUNT

⑈048637⑈ ⑆072462927⑆ 00045956⑈

AC 05-158235

RECEIVED
DEC 5 1988
DER - BAQM

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Space Shuttle Booster Refurbishment [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; Peeking Unit No. 2, Gas Fired) Paint Spray Booth/Grit Blast Booth

SOURCE LOCATION: Street Hangar Road City Cape Canaveral AF Station

UTM: East 540.3 North 3151.0

Latitude 28 ° 19 ' 16 "N Longitude 80 ° 35 ' 18 "W

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

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 National Aeronautics and Space Administration

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: James D. Phillips

James D. Phillips, Director Engineering Development Directorate
Name and Title (Please Type)

Date: 12/2/88 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 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: James D. Phillips

James D. Phillips
Name (Please Type)

(Affix Seal)

National Aeronautics and Space Administratio
Company Name (Please Type)

Kennedy Space Center, FL 32899
Mailing Address (Please Type)

Florida Registration No. Exempt per F.S. 471 Date: 12/2/88 Telephone No. (407)867-2565

[1]See Section 17-2.02(15) and (22), Florida Administrative Code, (F.A.C.)

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 _____ Completion of Construction _____

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.)

Paint Spray Booth - 42K

Grit Blast Dust Collector $3000

Grit Blast Booth $1750

Paint Booth Filters $500/yr

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

N/A

E. Is this application associated with or part of a Development of Regional Impact (DRI) pursuant to Chapter 380, Florida Statutes, and Chapter 22F-2, Florida Administrative Code? ____ Yes __X__ No

F. Normal equipment operating time: hrs/day 16 ; days/wk 5 ; wks/yr 52 ; if power plant, hrs/yr _____ ; if seasonal, describe: Operation will depend on Space Shuttle launch schedule

G. 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. _____
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirements apply to this source? If yes, see Sections VI and VII. _____
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? _____
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? _____

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:
See Attachment A Tables A-1, A-2

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

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): Not Applicable

2. Product Weight (lbs/hr): Not Applicable

C. Airborne Contaminants Emitted:

Name of Contaminant	Emission[1]		Allowed Emission[2] Rate per Ch. 17-2, F.A.C.	Allowable[3] Emission lbs/hr	Potential Emission[4]		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
VOC	1.6*	3.8	17-2.620	Exist. Tech	1.6*	3.8	Attach A
PM	0.6**	0.1	NA	NA	11.5**	3.3	Attach A

*Average hourly emissions **Based on 1 gal. of Zinc Rich Primer Paint used in 1 hour.

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles[5] Size Collected (in microns)	Basis for Efficiency (Sec. V, It[5])
Paint Spray Booth Binks - Dry Type	Particulate	95%	Submicron	Manuf. Lit
Dust Collection Vacuum ULPA Filter	Particulate	99.9995%	Submicron	Manuf. Lit

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g., Section 17-2.05(6) Table II, E. (1), F.A.C. – 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)

[5] If Applicable

E. Fuels Not Applicable

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	

*Units Natural Gas, MMCF/hr; Fuel Oils, barrels/hr; Coal, lbs/hr

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

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

F. If applicable, indicate the percent of fuel used for space heating. Annual Average _____ Maximum _____

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

Waste paints, thinners, solvents and solid film lubricant chemicals will be collected in DOT 17E containers and transported to a Federally permitted hazardous waste TSDF. (See Figures 1 and 2)

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack): Local Ventilation/Spray Booth

Stack Height: 20/50' ft. Stack Diameter: 14"/36" ft.

Gas Flow Rate: 2000/20000* ACFM Gas Exit Temperature: Ambient/Ambient °F.

Water Vapor Content: Ambient/Ambient % Velocity: _____ FPS

*ESTIMATED

SECTION IV: INCINERATOR INFORMATION

Not Applicable

Type of Waste	Type O (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq & Gas By-prod.)	Type VI (Solid By-prod.)
Lbs/hr Incinerated							

Description of Waste _____

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

Approximate Number of Hours of Operation per day _____ days/week _____

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 Diameter _____ 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.):

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight — show derivation. 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 Attachment B

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test). See Attachment B

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, etc.). See Attachment C

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). See Attachment C

6. An 8½" 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 Figures 1 and 2

7. An 8½" 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 D

8. An 8½" 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 D

9. An application fee of $20, unless exempted by Section 17-4.05(3), F.A.C. 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.

Not Applicable

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

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:
5. Useful Life:
6. Operating Costs:
7. Energy:
8. Maintenance Cost:
9. Emissions:

Contaminant	Rate or Concentration

*Explain method of determining D 3 above.

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*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy*: 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*: d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy**: h. Maintenance Costs:

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:

*Explain method of determining efficiency.

**Energy to be reported in units of electrical power – KWH design rate.

3.

a. Control Device:

b. Operating Principles:

c. Efficiency*: d. Capital Cost:

e. Life: f. Operating Cost:

g. Energy: h. Maintenance Cost:

*Explain method of determining efficiency above.

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*:

d. Capital Cost:

e. Life:

f. Operating Cost:

g. Energy:

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*:

3. Capital Cost:

4. Life:

5. Operating Cost:

6. Energy:

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

*Explain method of determining efficiency above.

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

b.

(1) Company:

(2) Mailing Address:

(3) City:

(4) State:

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

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions*:

Contaminant	Rate or Concentration

(8) Process Rate*:

10. Reason for selection and description of systems:

*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

Not Applicable

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.

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 on 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.

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

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
PROCESS DESCRIPTION - HANGAR N

SOLID FILM LUBRICANT AND GSE MAINTENANCE

This permit application involves two separate processes that will be performed in a shared facility. Each task has the potential to emit air pollutants. These processes are the solid film lubricant (Lube-Lok) application process and the Ground Support Equipment (GSE) maintenance process. These operations support the assembly and refurbishment of Space Shuttle Solid Rocket Booster (SRB) components and will be performed at Hangar N on the Cape Canaveral Air Force Station. USBI Co. Inc., a subsidiary of United Technologies Corporation, will be performing these tasks as contractually directed by the National Aeronautics and Space Administration (NASA). The following is a brief description of the tasks involved in this permit application.

The solid film lubricant application process is presented in a flow diagram (Figure 1). The operation is initiated by the pre-cleaning of components with 1,1,1 Trichloroethane. This hands-on, pre-cleaning, will be performed under a local ventilation unit in room 105. (A diagram of the Hangar N Facility is contained in Attachment D). Next, the hardware is further cleaned with a grit blast unit. The grit blast unit is equipped with a dust collector. The SRB components are then placed on a conveyor system and dipped into a tank containing an alkaline cleaner (Turco 4215 NC-LT). The parts are then transferred to an adjacent rinse tank. The parts are allowed to air dry. The following step in the process is to apply the Lube-Lok 1000. This is performed in the paint booth located in the high bay area. The coated components are then placed in an unvented oven and cured at 1000° F. The parts are returned to the paint booth where a burnish-base coat is applied. Next, the Lube-Lok 2006 coating is applied. The part is then brought back to the oven and cured at 500° F. The hardware is returned to room 105 where a final burnish top coat of isopropanol is applied. The last air pollutant process is the clean-up of the spray equipment with 1,1,1 Trichloroethane. This clean-up will occur in the paint spray booth.

The estimated material to be used annually (24 flights) is 360 gallons of 1,1,1 Trichloroethane, 24 gallons of Lube-Lok 1000, 240 gallons of isopropyl alcohol, 24 gallons of Lube-Lok 2006, 600 pounds of Turco 4215NC-LT alkaline cleaner and 4800 pounds of aluminum oxide grit blast material. Material Safety Data Sheets of these compounds are located in Attachment E.

All Lube-Lok related chemicals will be vented to the atmosphere except the grit blaster. This blasting material will be captured in portable dust collectors equipped with "ULPA" filters. The "ULPA" filters have a retention efficiency of 99.9995% at 0.12 microns.

The GSE maintenance process consists of priming and painting fifty (50) units of GSE on an annual basis. All work involving the priming and painting will be performed inside a ventilated paint booth system (This is the same paint booth used for the Lube-Lok process). The estimated material to be used annually is 100 gallons of paint, 70 gallons of primer, and 120 gallons of solvents and thinners. A flow diagram of the process is presented in Figure 2. Material Safety Data Sheets of the GSE chemicals are located in Attachment F.

Hazardous wastes generated from both of these processes will be collected in 55 gallon drums which are segregated based on chemical compatibility. Raw material usage is described in Tables A-1 and A-2.

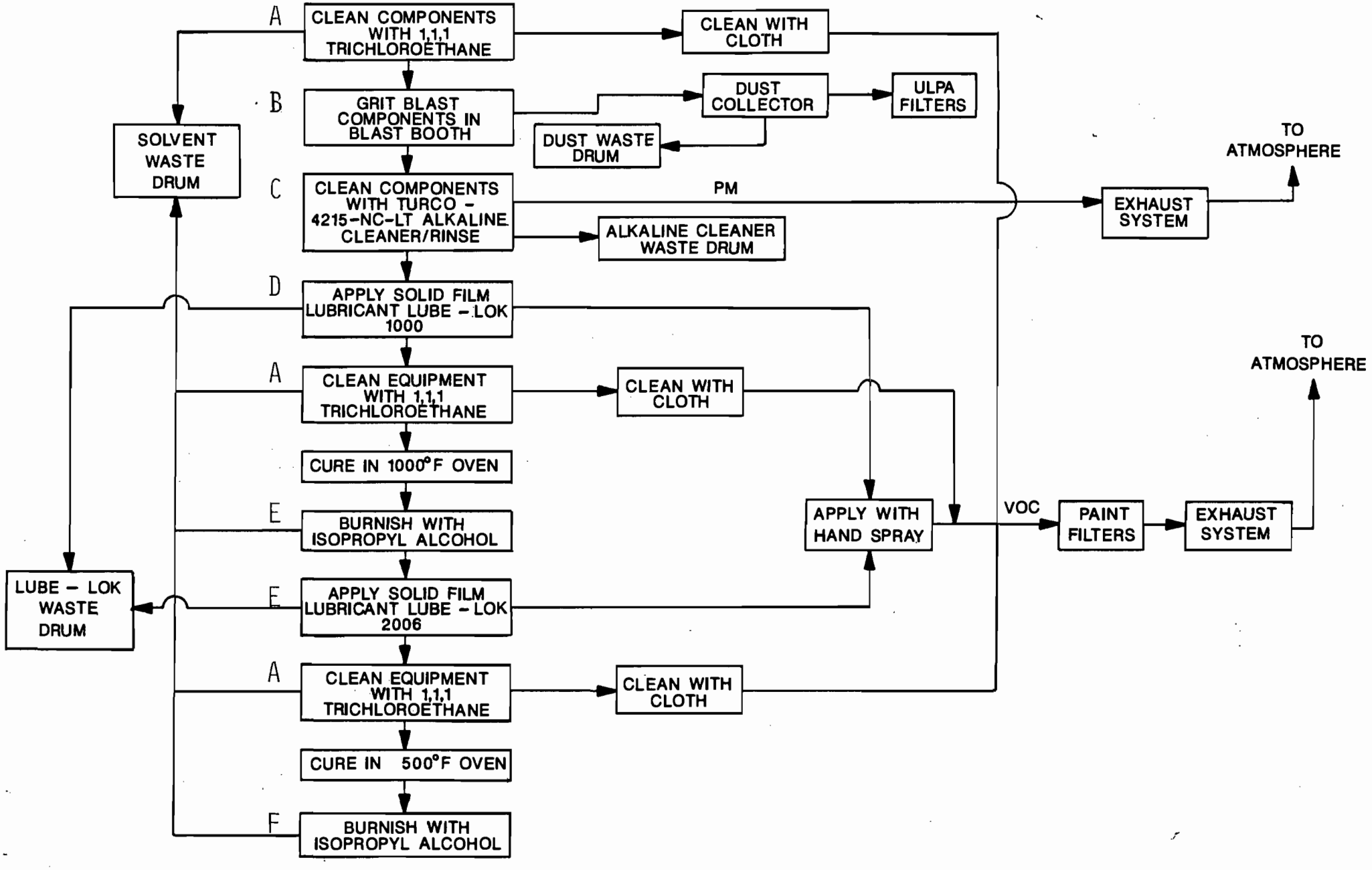

A
CLEAN COMPONENTS WITH 1,1,1 TRICHLOROETHANE
CLEAN WITH CLOTH
B
GRIT BLAST COMPONENTS IN BLAST BOOTH
DUST COLLECTOR
ULPA FILTERS
DUST WASTE DRUM
SOLVENT WASTE DRUM
TO ATMOSPHERE
C
CLEAN COMPONENTS WITH TURCO - 4215-NC-LT ALKALINE CLEANER/RINSE
PM
EXHAUST SYSTEM
ALKALINE CLEANER WASTE DRUM
D
APPLY SOLID FILM LUBRICANT LUBE - LOK 1000
A
CLEAN EQUIPMENT WITH 1,1,1 TRICHLOROETHANE
CLEAN WITH CLOTH
TO ATMOSPHERE
CURE IN 1000°F OVEN
E
BURNISH WITH ISOPROPYL ALCOHOL
APPLY WITH HAND SPRAY
VOC
PAINT FILTERS
EXHAUST SYSTEM
LUBE - LOK WASTE DRUM
E
APPLY SOLID FILM LUBRICANT LUBE - LOK 2006
A
CLEAN EQUIPMENT WITH 1,1,1 TRICHLOROETHANE
CLEAN WITH CLOTH
CURE IN 500°F OVEN
F
BURNISH WITH ISOPROPYL ALCOHOL

Figure 1

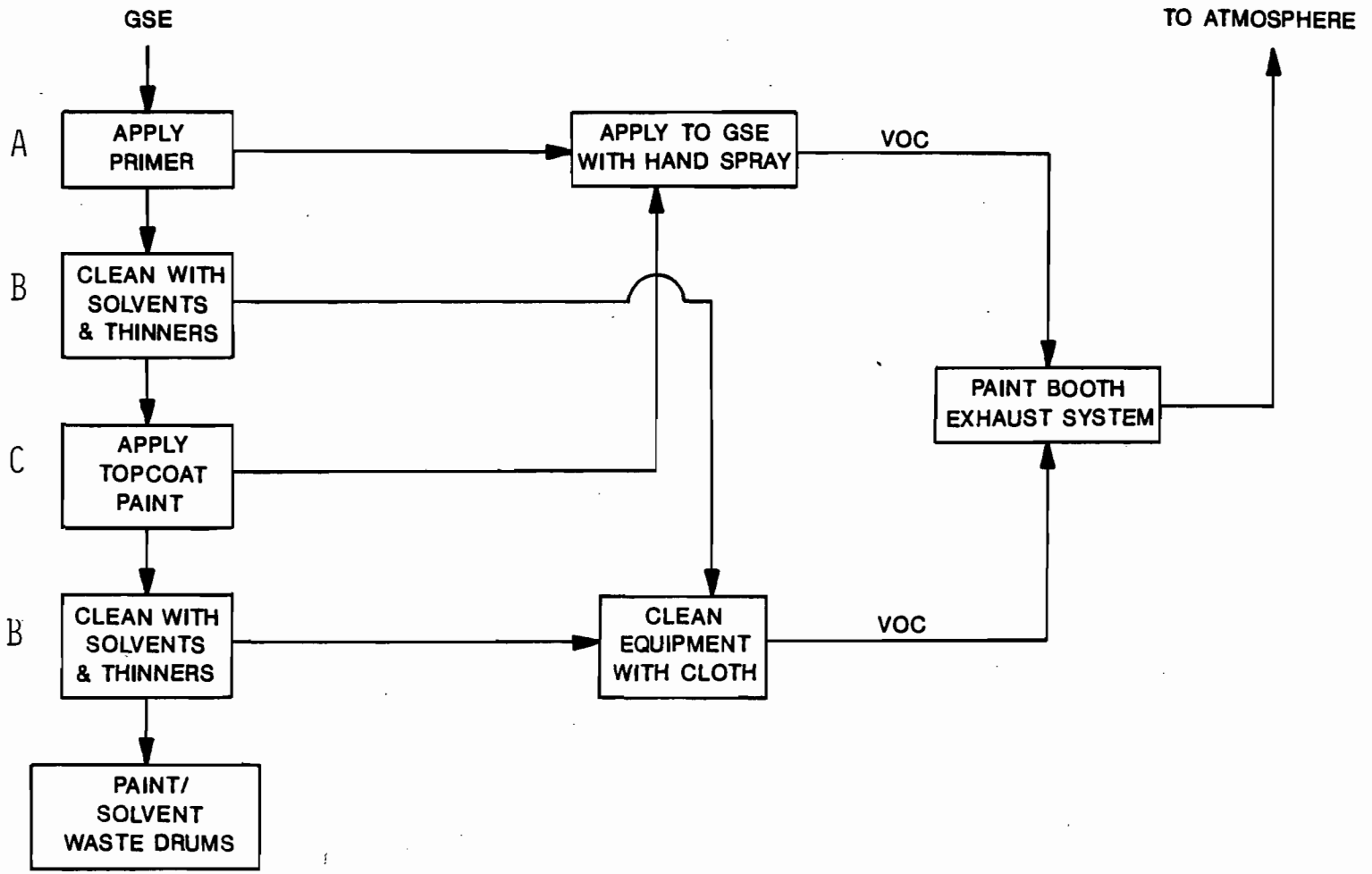

GSE
TO ATMOSPHERE
A
APPLY PRIMER
APPLY TO GSE WITH HAND SPRAY
VOC
B
CLEAN WITH SOLVENTS & THINNERS
PAINT BOOTH EXHAUST SYSTEM
C
APPLY TOPCOAT PAINT
B
CLEAN WITH SOLVENTS & THINNERS
CLEAN EQUIPMENT WITH CLOTH
VOC
PAINT/ SOLVENT WASTE DRUMS

Figure 2

TABLE A-1
SOLID FILM LUBRICANT
RAW MATERIALS AND CHEMICALS USED IN PROCESS

RAW MATERIAL	POLLUTANT TYPE	% WT	UTILIZATION RATE TONS/YR*	RELATE TO FLOW DIAGRAM (Figure 1)
1,1,1 Trichloroethane	VOC	100	2.0	A
Aluminum Oxide	PM	100	2.4	B
Turco 4215 NC-LT	PM	100	0.30	C
Lube-Lok 1000	VOC/PM	64/36	0.09	D
Lube-Lok 2006	VOC/PM	65/35	0.11	E
Isopropanol	VOC	100	0.79	F

Source: USBI Company, 1988

* Based on two (2) SRB's per space shuttle flight and 24 flights per year.

TABLE A-2
GSE PAINTING
RAW MATERIALS AND CHEMICALS USED IN PROCESS

RAW MATERIAL	POLLUTANT TYPE	% WT	UTILIZATION RATE TONS/YR*	RELATE TO FLOW DIAGRAM
				(Figure 2)
Paint-Primer	VOC/PM	33.4/66.6	0.61	A
Paint-Topcoat	VOC/PM	61.2/38.8	0.44	C
Carboline Thinner	VOC	100	0.18	B
Xylene	VOC	100	0.29	B

Source: USBI Company, 1988

* Based on two (2) SRB's per space shuttle flight and 24 flights per year.

ATTACHMENT B
EMISSIONS ESTIMATES

Lube-Lok

Emission estimates are calculated based on two SRB's per flight and 24 flights per year.

1,1,1 Trichloroethane will be used to pre-clean hardware, 5 gallons will be used per flight set.

5 gallons/flight X 24 flights/year X 11.06 lbs/gallons = 1327.2 lbs/year.

An additional 10 gallons of 1,1,1 Trichloroethane will used to clean up the spray equipment.

10 gallons/flight X 24 flights/year X 11.06 lbs/gallons = 2654.4 lbs.

Total 1,1,1 Trichloroethane usage is estimated at 1327.2 lbs + 2654.4 lbs = 3981.6 lbs/year = 2.0 tons/year.

It is assumed the total amount of 1,1,1 Trichloroethane used will be emitted as an air pollutant.

Aluminum oxide will be used as the media for grit blasting. This material is used in a grit blaster which is connected to a dust collector. The dust collector is equipped with "ULPA" filters which have an efficiency rating of 99.9995%. This unit is not exhausted to the atmosphere.

200 lbs aluminum oxide/flight X 24 flights/year X .0005% efficiency = 2.4 lbs/year = 0.0012 tons/year.

Turco 4215 - NC-LT is a powder which will be mixed with water to form an alkaline solution. 8 oz. of Turco powder will be mixed per gallon of water, 50 gallons of alkaline solution will be mixed per flight set. It is conservatively estimated 10% of the Turco 4215 NC-LT will be lost as particulate matter.

8 oz. = 0.5 lbs
0.5 lbs/gal X 50 gal/flight X 24 flights X (.10)=
60 lbs/year particulate emission =
0.03 tons/year.

Lube-Lok 1000 will be the initial dry film lubricant coating applied to SRB hardware where metal surfaces come into contact with each other. One gallon of Lube-Lok will be used per SRB flight set.

1 gallon/flight X 24 flights/year X 7.27 lbs/gallons = 174.5 lbs/year = 0.09 tons/year.

64% of the Lube-Lok 1000 is volatile
(.64 X 174.5) = 111.7 lbs/year
= 0.06 tons/year volatile emissions.

The remaining 36% is solids and will be assumed to be emitted as particulate matter. The filters in the paint booth are rated at 95% efficiency. Therefore particulate matter from this source is estimated at:

174.5 (.36) X .05 = 3.1 lbs/year = 0.002 tons/year.

Lube-Lok 2006 will be the final dry film lubricant coating. One gallon of Lube-Lok 2006 will be consumed per flight set.

1 gallon/flight X 24 flights/year X 9.0/lbs/gallon = 216.2 lbs/year = 0.11 tons/year.

65% of the Lube-Lok 2006 is volatile
(.65 X 216.2 lbs/year) = 140.5 lbs/year VOC's
= 0.07 tons/year VOC's

The remaining 35% is solids and will be assumed to be emitted as particulate matter. The filters in the paint booth are noted at 95% efficiency. Therefore, particulate matter from this source is estimated at:

(.35 X 216.2 lbs/year X .05) = 3.8 lbs/year as particulate matter
= 0.002 tons/year as particulate matter

Isopropanol will be used to burnish (polish) the Lube-Lok 1000 and 2006 coatings. It is estimated 5 gallons of isopropanol will be required after each coating application.

10 gallons/flight X 24 flights/year X 6.56 flights/year = 1574.4 lbs/year = 0.79 tons/year.

It is assumed the total amount of isopropanol used will be emitted as an air pollutant.

GSE Painting

Zinc Rich Primer will be applied via a hand held spray gun to GSE. This and all subsequent GSE operations will take place in a paint booth. It is estimated 70 gallons of primer will be used each year.

70 gallons/year X 17.4 lbs/gallon = 1218 lbs/year = 0.61 tons/year.

33.4% of this primer is volatile, air pollutants as VOC's released from this operation are calculated as:

1218 lbs/year (.334) = 406.8 lbs/year as VOC's = 0.20 tons/year.

66.6% of this primer is solids and will be assumed to be emitted as particulate matter. The filters in the paint booth are rated at 95% efficiency.

1218 lbs/year (.666) X (0.05) = 40.6 lbs/year as particulate matter
= 0.02 tons/year.

Topcoat Paint will be applied to GSE over the primer paint. It is estimated 100 gallons of topcoat will be used each year.

100 gallons/year X 8.7 lbs/gallon = 870 lbs/year = 0.44 tons/year.

61.2% of the topcoat is volatile, air pollutants as VOC's released from this operation are calculated as:

870 lbs/year (.612) = 532.4 lbs/year as VOC's = 0.27 tons/year.

38.8% of the topcoat is solids and will be assumed to be released as particulate matter. The filters on the paint booth are rated at 95% efficiency.

870 lbs/year (.388) X (0.05) = 16.9 lbs/year as particulate matter
= 0.01 tons/year.

There are two compounds which will be used to clean up GSE paint operations. It is estimated 80 gallons/year of xylene and 40 gallons/year of Carboline Thinner 26 will be used to support this operation. Both of these products are 100% volatile. Emission estimates are calculated for xylene as:

80 gallons/year X 7.18 lbs/gallon = 574.4 lbs/year as VOC's
= 0.29 tons/year as VOC's

Emission estimates fro Carboline Thinner 26 are:

40 gallons/year X 9.0 lbs/gallon = 360 lbs/year as VOC's
= 0.18 lbs/year as VOC's

TABLE B-1

LUBE-LOK AND GSE MAINTENANCE
VOC AND PM EMISSIONS ESTIMATES

RAW MATERIAL	VOC PERCENT	PM PERCENT	UTILIZATION RATE LBS/YEAR	VOC EMISSION RATE LBS/YEAR TONS/YEAR		*PM EMISSION RATE LBS/YEAR TONS/YEAR	
				(LBS)	(TONS)	(LBS)	(TONS)
1,1,1 TRICHLOROETHANE	100	0	3981.6	3981.6	2.0	0	0
ALUMINUM OXIDE	0	100	4800	0	0	2.4	0.0012
TURCO 4215 NC-LT	0	100	600	0	0	60	0.03
LUBE-LOK 1000	64	36	174.5	111.7	0.06	3.1	0.002
LUBE-LOK 2006	65	35	216.2	140.5	0.07	3.8	0.002
ISOPROPANOL	100	0	1574.4	1574.4	0.79	0	0
ZINC RICH PRIMER	33.4	66.6	1218	406.8	0.20	40.6	0.02
TOPCOAT PAINT	61.2	38.8	870	532.4	0.27	16.9	0.01
XYLENE	100	0	574.4	574.4	0.29	0	0
CARBOLINE THINNER 26	100	0	360	360	0.18	0	0
			TOTAL	7681.8	3.8	129.2	0.1

*PM emission rates were determined with removal efficiency of filters factored into calculations

ATTACHMENT C

AIR POLLUTION CONTROL EQUIPMENT

GRIT BLAST UNIT
DUST COLLECTION UNITS
PAINT FILTERS

File Copy

OPERATING INSTRUCTIONS & PARTS MANUAL

BLAST CABINET

MODELS 3Z848, 3Z849, 3Z850, 3Z887 & 3Z947

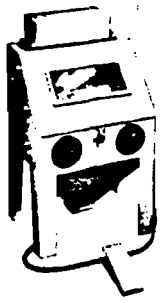
FORM
5S2424
03678

DAYTON ELECTRIC MANUFACTURING CO. CHICAGO 60648

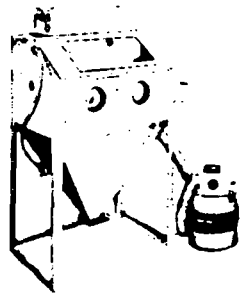
1086/331/25(

READ INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO ASSEMBLE, OPERATE OR SERVICE THE DAYTON BLAST CABINET. FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE!
RETAIN INSTRUCTIONS FOR FUTURE REFERENCE.

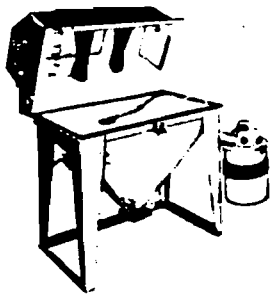
MODEL 3Z848



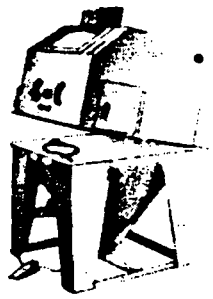
MODELS 3Z849 & 3Z850



MODEL 3Z887



MODEL 3Z947



NOTE: Vacuum not included.

Figure 1

Description

The Dayton blast cabinet is a dry cleaning, finishing and polishing system for use with most common abrasives including glass beads, aluminum oxide, garnet, walnut shells, etc. An exterior on-off switch controls lighting on all models. All cabinets are sealed at windows, door openings and at bottom of hopper where media is discharged. Internal gun system is designed to produce various finishes, fine to coarse.

WARNING: THIS IS A DRY-BLAST UNIT. IT IS NOT MADE TO ACCOMMODATE MOISTURE OF FLUIDS OF ANY KIND USED SEPARATELY OR AS A MIX WITH BLAST MEDIA.

Unpacking

When unpacking blast cabinet inspect carefully for any damage that may have occurred during transit. Check for loose parts, missing parts or damaged parts.

Specifications

Construction
- Unit ..... 14 Gauge steel
- Legs ..... 11 Gauge steel

Power Source Requirement ..... 3 HP Compressor

Suggested Exhaust System
- 3Z848, 3Z849 & 3Z850 .. Dayton Vacuum 2Z205
- 3Z887 & 3Z947 ..... Dayton Vacuum 2Z563

Internal Gun System
- Foot control valve airline ..... 3/8" ID
- Tungsten carbide nozzle ..... 1/4" ID

Lighting

Stock No.	Qty.	Wattage	Fluorescent Tube
3Z848	1	6	2V805
3Z849	1	9	2V834
3Z850	2	20	1V174
3Z887	2	20	1V174
3Z947	2	20	1V174

Openings	Top	Side
3Z848	18" X 12"	None
3Z849	30" X 13"	None
3Z850	36" X 13"	17" X 11"
3Z887	42" X 24"	17" X 11"
3Z947	40" X 40"	20" X 30"

General Safety Information

1. Follow all electrical and safety codes, as well as the National Electric Code (NEC) and the Occupational Safety and Health Act. (OSHA)
2. Use only adequate extension cords with 3-prong grounding-type plugs, and which are adequate size for longer runs. Use a 3-prong receptacle to plug in to. Unit is equipped with 3-prong grounding plug for your protection against shock hazard (See Grounding).
3. Replace or repair damaged or worn cord immediately.
4. Make sure that the power source conforms to the requirements of your equipment.

   WARNING: DO NOT OPERATE CABINETS, OR AIR FLOW WITH CABINET DOOR OR TOP OPEN. THIS COULD RESULT IN SKIN DAMAGE, SERIOUS EYE DAMAGE OR BLINDNESS IF THE BLAST WERE TO COME IN CONTACT WITH UNPROTECTED PARTS OF THE BODY.
5. Do not use fluids, or mix fluids with blast media for blasting. This cabinet is designed to accommodate dry blasting media. Use of fluids of any kind will result in clogging gun systems and possible damage to exhaust system.
6. Keep media cleaned up from floor around the machine and in storage places. Most forms of blasting material are very fine ground, conse-

General Safety Information (Continued)

quently slippery. A small amount spilled on the floor from filling machine could cause a person to fall.

7. Check and clean exhaust unit frequently. Do not allow exhaust unit to become clogged so that it does not exhaust dust from machine.
8. Do not exceed maximum operating pressure of 150 PSI.
9. Follow assembly instructions before plugging unit into electric power. 115V. may cause severe shock if hand slips into light fixture when inserting bulb.

Assembly

NOTE: Light bulbs are shipped loose.

ALL MODELS

1. Before plugging machine into power source, attach light box.

   CAUTION: Do not attempt to attach light bulbs into light sockets at anytime when machine is plugged into electrical outlet.
2. Connect exhaust system to exhaust opening on cabinet if unit is so equipped.
3. Connect air supply to cabinet.

Installation

WARNING: CABINET MUST BE CONNECTED TO SOME FORM OF DUST COLLECTION SYSTEM.

1. Locate blast cabinet where it may be plugged into permanently energized 115V. electrical 60HZ AC outlet, making sure the receptacle will accept the 3-pronged plug to insure grounding of the unit. It should also be placed where it can be connected to plant's central exhaust system for cleaning dust from air, if available or where there is room to accommodate suggested Dayton vacuum Model 2Z205.
2. The blast cabinet must be connected to air compressor that will supply 10 CFM at 80 PSI for constant usage.

   CAUTION: This blast cabinet is equipped with a three prong (grounding) plug for your protection against shock hazards, and should be plugged directly into a properly grounded three prong receptacle. Where a two prong wall receptacle is encountered, it must be replaced with a properly grounded three-prong receptacle in accordance with the National Electrical Code and local codes and ordinances. THIS WORK SHOULD BE DONE BY A QUALIFIED ELECTRICIAN. A grounding adapter may be used. The green lead from the side of the adapter should be securely connected to a suitable electrical ground such as a grounded water pipe, or ground wire system.

   NOTE: Use of a 3-prong adapter is prohibited by Canadian Electrical Code.
3. If you have purchased air regulator or gauge, follow their enclosed installation and operating instructions. Make sure air is not connected to machine during assembly.
4. Model 3Z947 should be secured to the floor before opening the flip top lid.

Operation

1. Make sure all air fittings are secure.
2. Make sure exhaust unit is connected if ordered.

   CAUTION: Close access doors before blasting.
3. Machine must be supplied by an air compressor that will deliver 10 CFM at 80 PSI for constant usage.
4. Do not operate in excess of 150 PSI.
5. To charge the system, pour approximately 10-15 pounds of media into the hopper through the door opening. Using this amount of media helps to keep the media flowing smoothly through the pick-up system.
6. Adjust air supply to accomplish operation to be done. Air pressure within the range of 70 to 100 PSI is suitable for most operations. This range of pressures produces the best results, while at the same time does not produce excess drainage on the air supply or cause rapid deterioration of abrasives.
7. Softer metals and materials or delicate parts should be cleaned at lower pressures to prevent undesirable peening. Non-critical parts requiring rapid cleaning or peening may be done with higher air pressure for speed.
8. For best results the operator should provide continuous gun movement over the work surface. This will insure that the blast pattern will cover all surface evenly. "Hard to Clean" areas will require a more concentrated blast.
9. Machine is designed to operate as a dry blast system. Do not mix fluids with media.
10. Keep media cleaned from floor to prevent slipping or falling.
11. Clean exhaust system regularly so that it always exhausts dust from machine.
12. Use air gauge and regulator to determine exact air pressure. They are connected to outside of cabinet at air fitting. Follow instructions for installation of air pressure regulator.
13. Exhaust attachment for All Models use Model 2Z205 dry vacuum (Model 2Z563 for 3Z887 & 3Z947). Attach end of vacuum hose to hole in right-hand side of machine. Follow operating instructions for vacuum, enclosed in package.

Maintenance

CABINET

To clean dust from the inside of the cabinet, disconnect the pick-up hose from the gun assembly and use the air supply to stir up the dust. Continue this operation until the exhaust system has drawn excess dust from the unit.

EXHAUST BAGS & FILTERS

To insure that the exhaust system functions efficiently, the filter on canisters for all Models should be emptied and cleaned daily when machine is in use. Replacement bags for vacuums, order Model 5X878.

GUN ASSEMBLY

Check the blast nozzle and air jet occasionally for signs of wear. When the opening inside nozzle becomes too large, the result will be a poor blast pattern. Speed and efficiency in cleaning will be lost.

Maintenance (Continued)

Remove set screw in gun body and take out used nozzle. Insert new nozzle so that the cone shape is in. Retighten set screw. Same procedure for air jet. Threaded end goes out.

WINDOW

The window may eventually become clouded or frosted causing poor visibility. Remove the window plastic underlayment and replace.

GASKET REPLACEMENT

If after extended use of the machine the gasket around door or window becomes damaged or worn, it can be replaced with sponge rubber as follows:

1. Remove old gasket.
2. Clean surface.
3. Affix new gasket to cleaned surface.

Trouble Shooting Chart

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Too much dust in cabinet.	1. Exhaust unit not functioning efficiently. 2. Media is broken down or deteriorated.	1. All models. Remove lid from exhaust canister and clean cloth filter. 2. Replace blasting media.
Noticeable speed and efficiency are lost in blasting operation.	1. Media is broken down or deteriorated from constant use.	1. Replace media.
Static electricity	1. Weather conditions, excessive dust in unit.	1. a. Properly ground the machine. b. Allow work piece to rest on the work table grating in the unit. This will discharge static electricity through the cabinet into the unit's ground wire. c. Ground the operator.
Poor blast pattern	1. Worn nozzle.	1. Replace nozzle.
Poor abrasive flow.	1. Abrasive level too low. 2. Dirty abrasives. 3. Wet abrasives. 4. Worn airjet. 5. Worn nozzle. 6. Worn siphon tube. 7. Insufficient air: a. When machine stands idle check pressure gauge. With foot pedal depressed, needle on gauge should not drop below desired blasting pressure. b. Needle should hold steady and not drop while blasting. 8. Nozzle installed backwards. 9. Clogged gun. 10. Plugged siphon tube.	1. Add abrasives. 2. Replace, possibly install filter screen. 3. Replace, possibly install water filter. 4. Replace. 5. Replace. 6. Replace. 7. a. Larger compressor, larger air line, smaller gun. b. Larger compressor, smaller gun. 8. Cone shaped end should be installed in towards air jet. 9. Take apart and clean and reassemble. 10. Check to see that hole is clear on both sides of siphon tube.

Service Record

DATE	MAINTENANCE PERFORMED	COMPONENTS REQUIRED

LIMITED WARRANTY

DAYTON ONE-YEAR LIMITED WARRANTY. Dayton blast cabinets, Models 3Z848, 3Z849, 3Z850, 3Z887 & 3Z947 are warranted by Dayton Electric Mfg. Co. (Dayton) to the original user against defects in workmanship or materials under normal use for one year after date of purchase. Any part which is determined by Dayton to be defective in material or workmanship and returned to an authorized service location, as Dayton designates, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at Dayton's option. For limited warranty claim procedures, see PROMPT DISPOSITION below. This limited warranty gives purchasers specified legal rights which vary from state to state.

LIMITATION OF LIABILITY. To the extent allowable under applicable law, Dayton's liability for consequential and incidental damages is expressly disclaimed. Dayton's liability in all events is limited to, and shall not exceed, the purchase price paid.

WARRANTY DISCLAIMER. Dayton has made a diligent effort to illustrate and describe the products in this literature accurately; however, such illustrations and descriptions are for the sole purpose of identification, and do not express or imply a warranty that the products are merchantable, or fit for a particular purpose, or that the products will necessarily conform to the illustrations or descriptions.

Except as provided below, no warranty or affirmation of fact, expressed or implied, other than as stated in "LIMITED WARRANTY" above is made or authorized by Dayton.

PRODUCT SUITABILITY. Many states and localities have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. While Dayton attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, please review the product application, and national and local codes and regulations, and be sure that the product, installation, and use will comply with them.

Certain aspects of disclaimers are not applicable to consumer products; e.g., (a) some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you; (b) also, some states do not allow limitations on how long an implied warranty lasts, consequently the above limitation may not apply to you; and (c) by law, during the period of the Limited Warranty, any implied warranties of merchantability or fitness for a particular purpose applicable to consumer products purchased by consumers, may not be excluded or otherwise disclaimed.

PROMPT DISPOSITION. Dayton will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Dayton at address below, giving dealer's name, address, date and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file claim with carrier.

Dayton Electric Mfg. Co., 5959 W. Howard St., Chicago, IL 60648

ORDER REPLACEMENT PARTS THROUGH DEALER FROM WHOM PRODUCT WAS PURCHASED

Please provide following information:
- Model Number
- Serial Number (if any)
- Part Description and Number as shown in parts list.

If dealer cannot supply, order from:
Dayton Electric Mfg. Co.
Parts Department
5959 W. Howard St.
Chicago, Illinois 60648

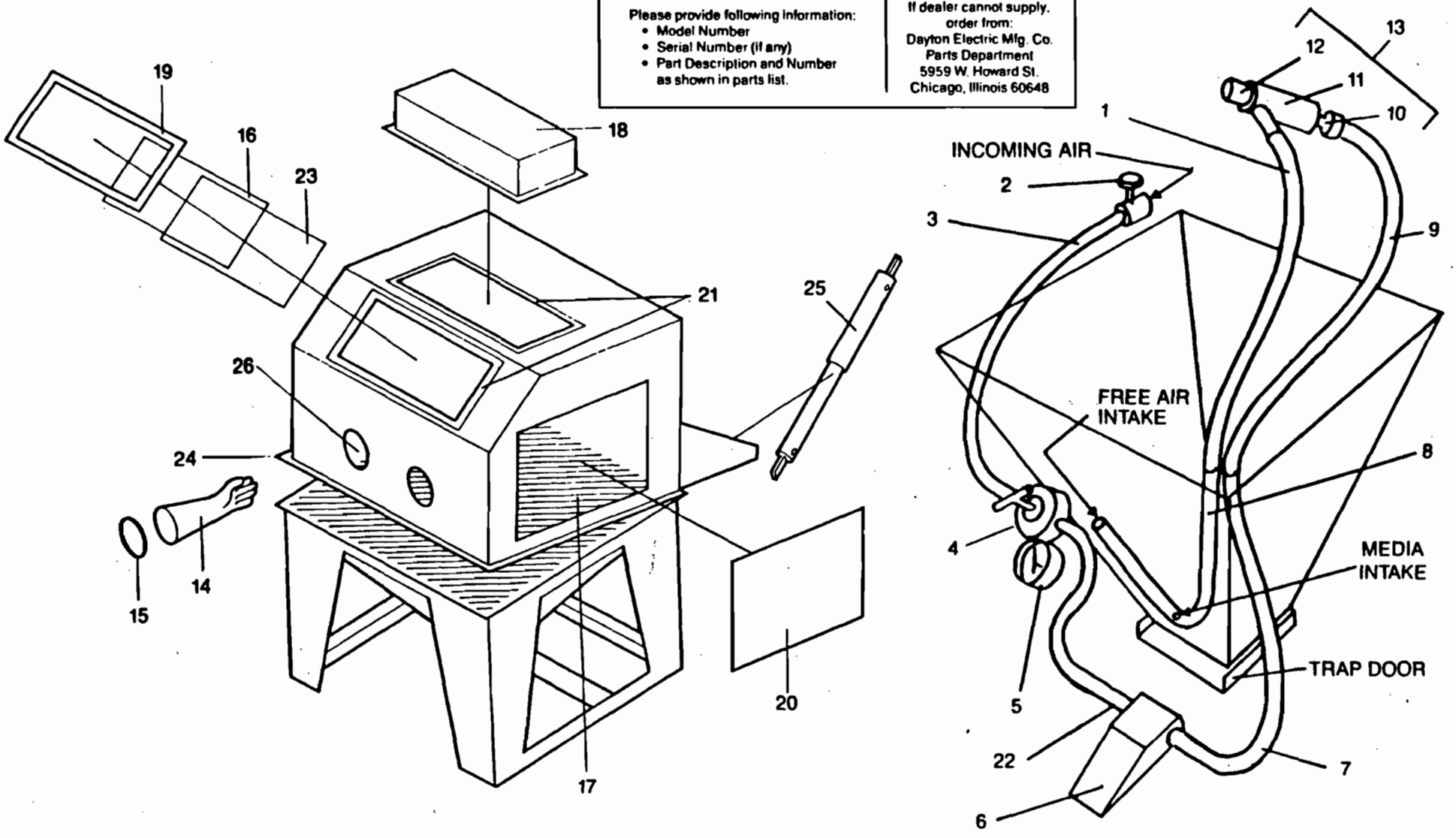


Figure 2 — Replacement Parts Illustrations

Replacement Parts List

REF. NO.	DESCRIPTION	PART NUMBER FOR MODEL:				
		3Z848	3Z849	3Z850	3Z887	3Z947
1	Clear abrasive hose	13403-2	13403-3	13403-3	13403-3	13403-4
2	Door safety switch w/adapter	11706	11706	11706	11706	11706
3	Air hose, 3/8" I.D. with fittings	13312	13313	13309	13309	13309
4	Pressure regulator	1Z696	1Z696	1Z696	1Z696	1Z696
5	Pressure gauge	4X513	4X513	4X513	4X513	4X513
6	Foot pedal with valve	14106	14106	14106	14106	14106
7	Air hose, 3/8" I.D. with fittings	13314	13315	13317	13301	13301
8	Siphon tube	11604	11604	11604	11604	11604
9	Air hose, 3/8" I.D. with fittings	13305	13311	13306	13307	13307
10	Air jet	10323	10323	10323	10323	10323
11	Gun body	10105	10105	10105	10105	10105
12	Nozzle	10201	10201	10201	10201	10201
13	Gun assembly (includes Ref. Nos. 10, 11 & 12)	10107	10107	10107	10107	10107
14	Gloves (pair)	12001	12002	12002	12002	12007
15	Glove clamp	11631	11632	11632	11632	11633
16	Window (Plexiglas)▲	11410	11412	11405	11405	11405
17	Cabinet floor	1618	2430	2436	4224	4040
18	Lamp box assembly	14204	14204	14208	14208	14208
19	Window frame	18WF	30WF	36WF	36WF	36WF
20	Side door assembly	—	—	1713DA	1713DA	2030DA
21	Gasket (1" wide x 1/2" thick)	11400-4	11400-4	11400-6	11400-6	11400-6
22	Air hose, 3/8" I.D. with fittings	—	—	13314	13303	13303
23	Window underlayment	11407	11407	11407	11407	11407
24	Lid gasket (1" wide x 1/2" thick)	—	—	—	11400-12	11400-16
25	Lid dampener	—	—	—	—	11650
26	Armhole gasket	11400-15	11400-19	11400-19	11400-19	11400-22
△	Optional carbon screen	14349	14351	14352	14353	14358

Part No. 11703, door latch is used for all models (not shown).
▲Standard hardware item, available locally. △ Not shown

NILFISK FEATURES

GS-Series Motors
Exclusively Nilfisk: Long-lasting, powerful motors are standard. Built entirely by Nilfisk, these are the most refined industrial vacuum cleaner motors in the world. They are superior to anything else now available. For instance, Nilfisk carbon brushes outlast those in most ordinary industrial vacuums almost two to one. And every Nilfisk motor is dynamically balanced, extending its service life by preventing premature wear. Vibration-free performance, even at 19,000 rpm, keeps operating noise levels in the low 70 dB(A) range.

A patented thermo-valve prevents overheating caused by neglecting filters or by an accidental blockage in a nozzle or hose. It "whistles," telling the operator there's a potential problem somewhere.

All Nilfisk motors have the power to generate a cyclone within the vacuum cleaner. This centrifugal airflow forces collected debris directly down into the container or, in some models, a sealable plastic bag. This prevents the main filter from clogging quickly and assures that Nilfisk vacuums maintain maximum efficiency until almost full.

Exclusive Nilfisk thermistors diminish the amperage surge at start-up. Carbon brush life is extended and circuit breaker overloading is reduced. Built-in condensers eliminate static interference with sensitive electronic equipment.

Planned to the last detail, Nilfisk motors are supplied either grounded or double-insulated. On top of all this, Nilfisk stocks motor replacement parts for 20 years to assure quick repairs if necessary.

Manometer
The Nilfisk manometer, another exclusive: The optional manometer measures the pressure differential above and below the main filter and tells the operator at a glance whether the Nilfisk cleaner is operating at peak efficiency. It indicates when the vacuum cleaner is creating maximum airflow, when dust must be shaken from filters, and when the vacuum must be emptied. All this without opening the container and exposing the operator to collected dust or debris.

Along with assuring better vacuuming results, the Nilfisk manometer increases filter and motor life and keeps downtime to a minimum.

Nilfisk manometers are available for models GS 82, GS 83, and GB 733.

External Filter Agitator Handle
Another Nilfisk plus: the filter agitator. Shaking this external handle keeps the main filter inside the vacuum cleaner free of clogging dust. It maintains the vacuum's maximum suction and filtration efficiency, protects motors against superfine dust, prolongs filter life, and thus saves employees from exposure to collected toxic or hazardous dust.

Nilfisk filter agitators are standard on models GS 82, GS 83 and GB 733.

HEPA and ULPA Filters
Nilfisk HEPA filters (optional): Of all the fiberglass HEPA filter cartridges available, this is the easiest to remove intact, and change, without particulates escaping into the air—or getting on hands and clothes.

This critical filter in Nilfisk's graduated filtration system assures that 99.97% of all ultrafine particulates, toxic and nuisance, are captured. Down to and including 0.3 microns.

Nilfisk ULPA filters (optional): The laser tested ULPA filters have a retention efficiency of 99.9995% at 0.12 microns.

All Nilfisk HEPA and ULPA filters are individually DOP-tested and certified. They meet ANSI Z9.2-1971.

Nilfisk HEPA and ULPA filters available to fit most Nilfisk vacuum cleaners.

Blower Attachment
More Nilfisk versatility: blower attachments (optional). Special blower adapter replaces a motor's exhaust diffuser and converts the powerful vacuum motor into an equally powerful blower.

Blower adapters are available for Nilfisk models GS 80, GS 80I, GS 81, GS 82 and GS 83.

Sound Suppressor
Nilfisk sound suppressors (optional): When exceptionally low noise levels are critical, Nilfisk sound suppressors quiet motors an additional 10 dB(A) to the even more silent low 60's range.

Most Nilfisk models can be equipped with sound suppressors.

NILFISK

Dust Collection Specialists Since 1910.

NILFISK OF AMERICA, INC., 300 Technology Drive, Malvern, PA 19355, (215) 647-6420

DEMONSTRABLY BETTER

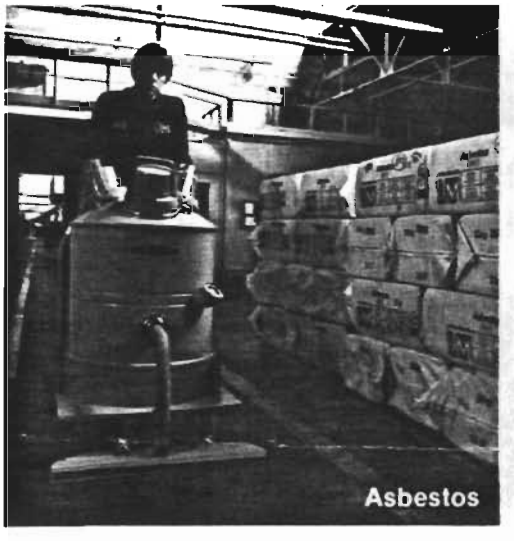
5000K 10/86

Printed in U.S.A.

Nilfisk simplifies the safe collection and disposal of toxic, hazardous, and nuisance waste materials.

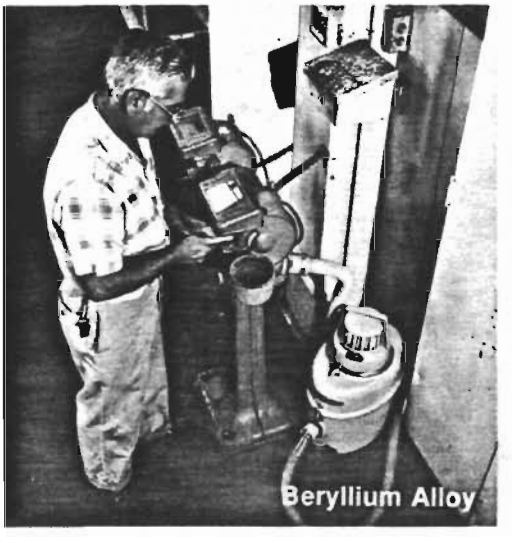
Unique absolute filtering system meets or exceeds OSHA safety standards for control of such toxic materials as . . . lead, asbestos, silica, mercury, beryllium alloy, insecticides, cotton dust, and other health endangering dusts.


Lead


Asbestos

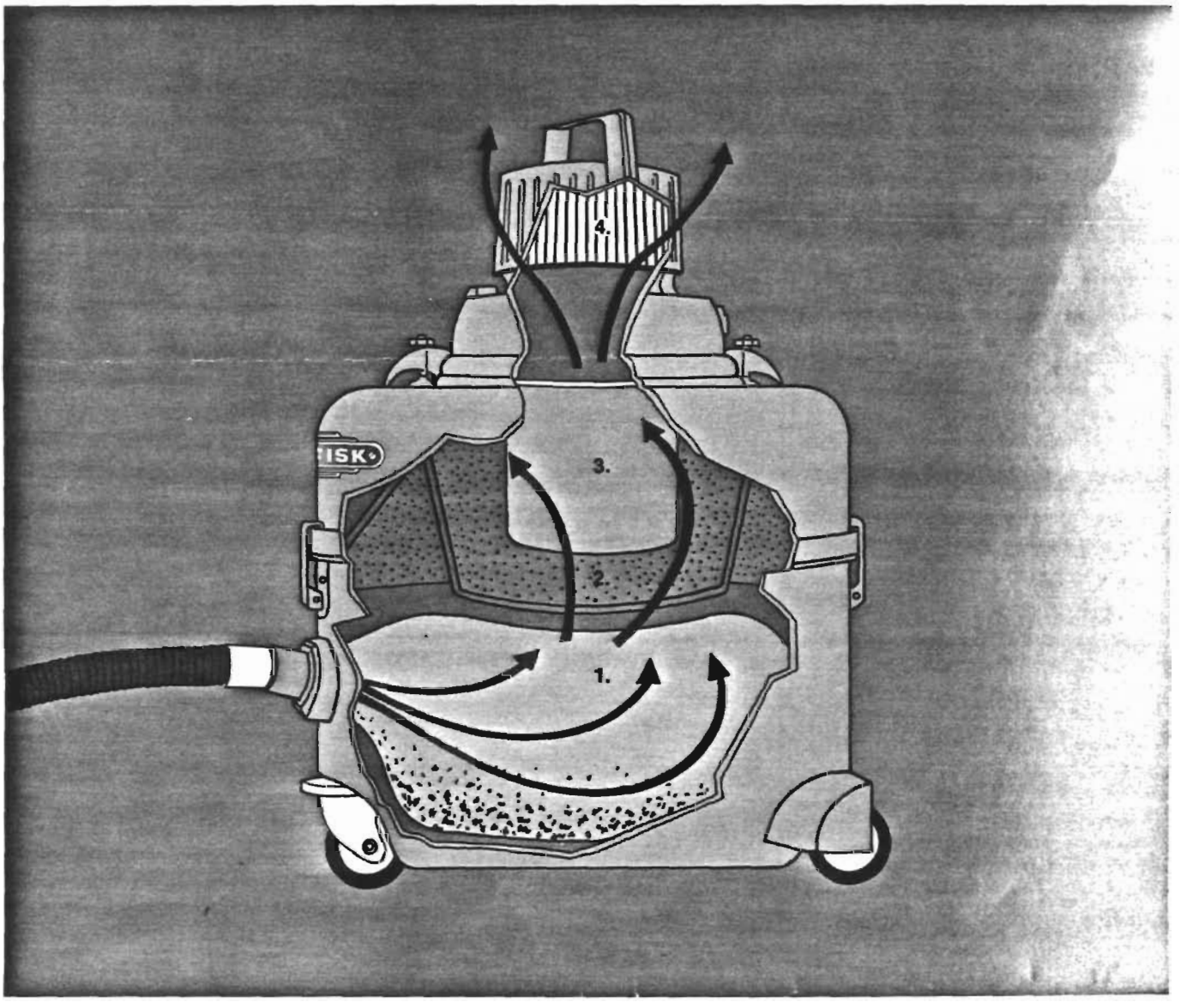

Silica


Mercury


Beryllium Alloy


Cotton Dust

Nilfisk HEPA* Filtering System traps toxic and hazardous dusts with a 99.97% retention efficiency down to 0.3 microns.



Nilfisk portable dust collectors / industrial vacuums deliver this absolute filtration with minimal loss of suction and without the risk of motor burn-out. They trap even ultra-fine dusts and return "absolutely" clean air to the work environment. Here's how the absolute filtering system works:

1. First Stage Separation — The centrifugal or "cyclonic" airflow pattern of the cleaner aerodynamically separates heavier dust from collected fines.

2. Main Filter — Powerful suction coupled with extra-large filtering surfaces ensures a steady, even airflow which prolongs filter life and eliminates premature clogging. Optional manometer on larger models detects build-up of dust and alerts the operator to shake the main filter. Exclusive external handle allows the operator to purge the filter without the danger of secondary exposure to collected dust since the cleaner remains sealed.

3. Microfilter — Final pre-filtering protection for the motor is provided by a microfilter with a retention efficiency of 99.5% at 2 microns.

4. "Absolute" Exhaust Filter — Nilfisk High Efficiency Particulate Air (HEPA) filter further increases retention efficiency to absolute standards of 99.97% at 0.3 microns. The dust is collected in sealable bags for safe disposal.

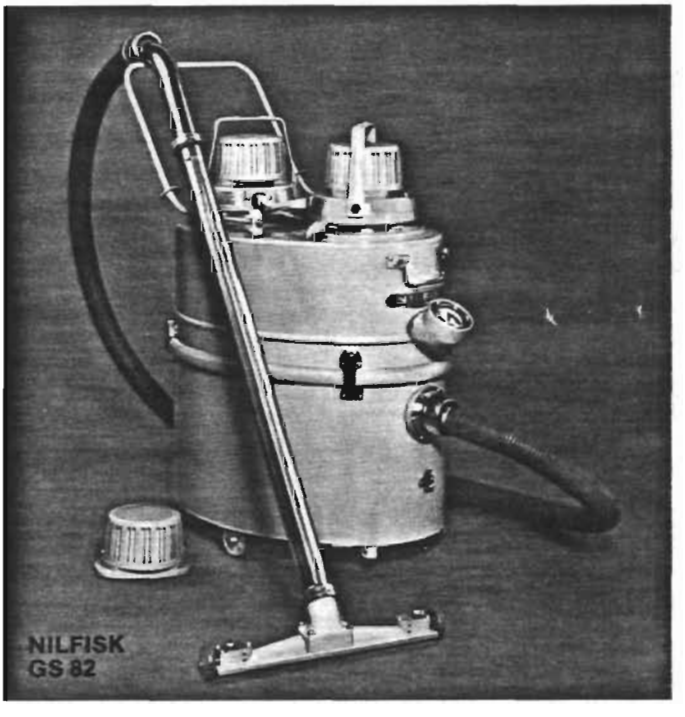
Nilfisk portable dust collectors have design advantages that make them ideal for the safe collection and disposal of toxic, hazardous, and nuisance waste materials in any work environment — from laboratories and clean rooms to manufacturing and processing facilities. These design advantages include:

- clog resistance
- absolute filtering
- dust-free disposal
- powerful suction
- large recovery capacity
- low noise level

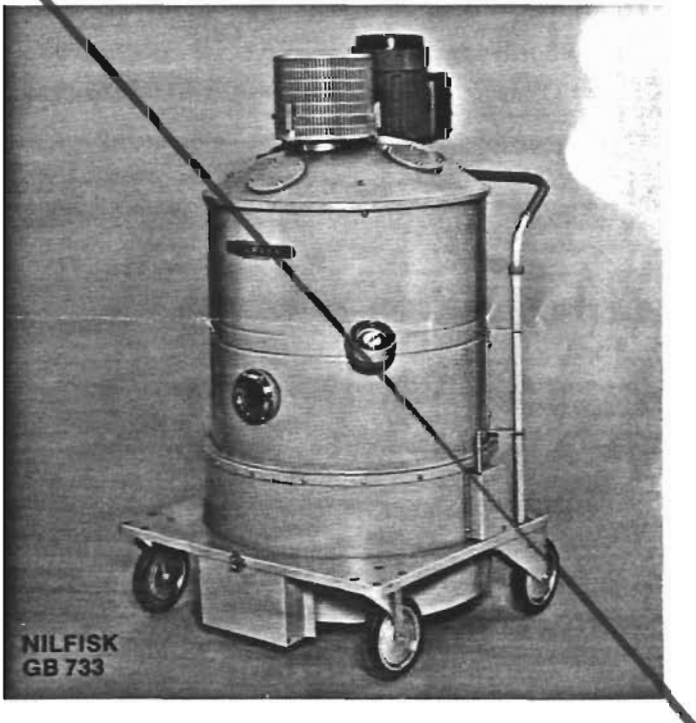
 *High Efficiency Particulate Air

Handy small-sized unit with big-power cleanup. The GS 80 goes anywhere for fast, safe cleanup. Ideal for use at individual work stations. Has a disposable bag capacity of 2¼ gallons dry-bulk.

Greater capacity with greater durability. The GS 81 is a larger, heavy-duty unit that is easily maneuvered even where space is restricted. Has a disposable bag capacity of 4 gallons dry-bulk.



Ruggedness and versatility in a medium-sized unit. The GS 82 has the suction capacity to handle a wide range of tough cleanup assignments. Delivers a capacity of 12 gallons dry-bulk.



Heavy-duty, performance. The GB 733 has the power and capacity to handle any cleanup assignment. Three-phase induction motor permits continuous recovery of dusts in either built-in or mobile applications. Disposable bag capacity of 18 gallons dry-bulk.

ATTACHMENT D

PLOT PLAN AND LOCATION MAP

FACILITY/EQUIPMENT LAYOUT DRAWINGS

AF 26693C

DWG NO. HRN-FIDD-002 | SHEET 1 | REV —

☐ APPROVED SOURCE OF SUPPLY ☐ SUGGESTED SOURCE OF SUPPLY
SEE SEPARATE PARTS LIST PL_____

REVISIONS

REV	DESCRIPTION	CHK	DESIGN ENGR
—	RELEASE-		

REVISION STATUS OF SHEETS	REV	—	—	—	—						
	SH	1	2	3	4	5	6	7	8	9	10

~~SEE SEPARATE PARTS LIST~~ PL

NOV 0 9 1988

~~FOR PARTS, APPLICATION DATA AND NOTES~~

UNLESS OTHERWISE SPECIFIED	INTERPRET DRAWING PER DOD-STD-100	DATE YR MO DAY	CONTRACT NUMBER	DATE YR MO DAY
DIMENSIONS ARE IN INCHES. DIMENSIONS AND SURFACE TEXTURE DESIGNATIONS APPLY BEFORE PLATING OR FINISH COATINGS.	STRESS		PREPARED	88.9.21
	PRODUCT ASSURANCE		CHECKER	
	MATL & PRCS		DESIGN ENGR	
TOLERANCE ON: 2 PLACE DEC ± 3 PLACE DEC ± ANGLES ±	SAFETY		SECTION CHIEF	
	MFG		BRANCH MGR	
	OTHER (SPECIFY)		DEPT MGR	

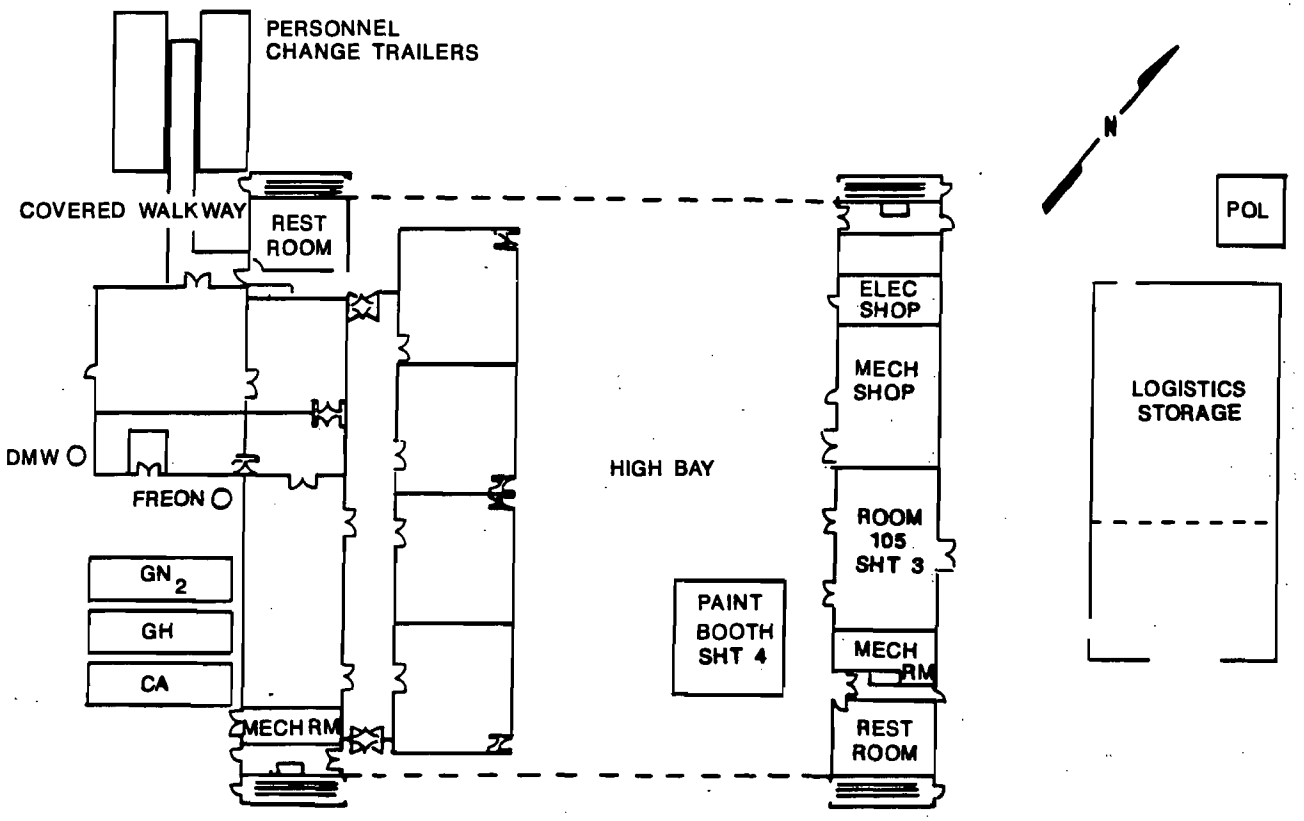
UNITED TECHNOLOGIES UNITED SPACE BOOSTERS
P. O. BOX 1626
HUNTSVILLE, ALABAMA 35807

FACILITY INTERFACE DEFINTION DOCUMENT

SIZE	FSCM NO.	DWG NO.
B	55340	HRN-FIDD-002

SCALE NONE SHEET 1 of 4

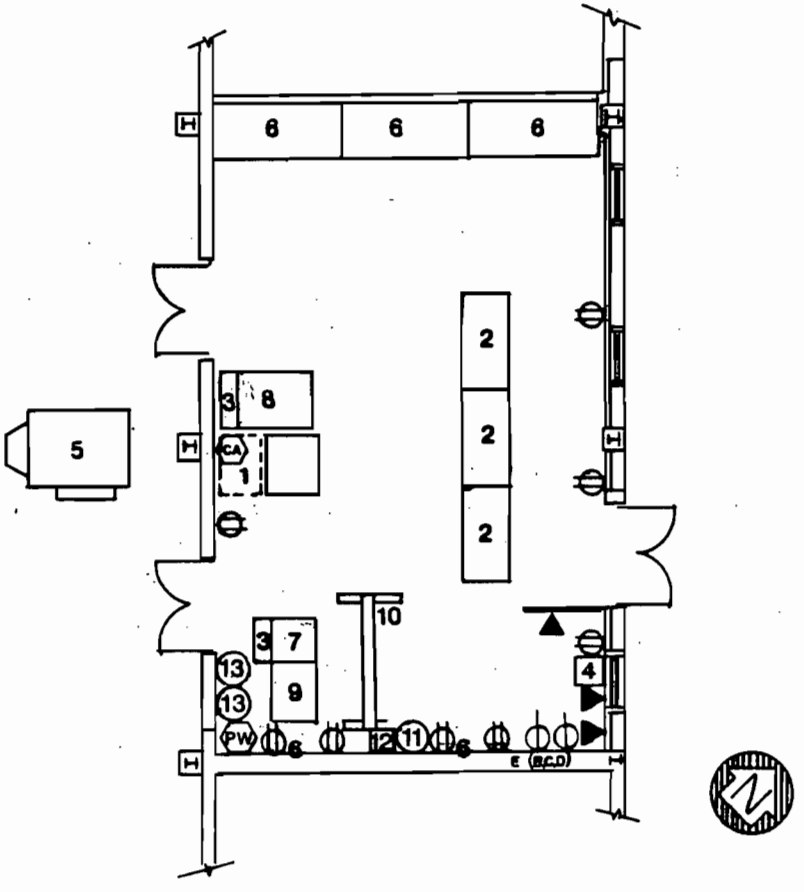
USB5018 (81/03) ANSI Y14.1-1975



HANGAR N FACILITY

NOV 0 9 1988

PREPARER [signature]	YR MO DAY 88 · 9 · 21	SIZE B	FSCM NO. 55340	DWG NO. HRN-FIDD-002	
CHECKER					
DESIGN ENGR		SCALE NONE			SHEET 2



FACILITY SERVICE LEGEND

- RECEPTACLE, DUPLEX 110 VOLT
- E (B,C,D) RECEPTACLE, EXPLOSION PROOF
- TELEPHONE OUTLET
- 6 POWER STRIP 110 VOLT WITH SIX RECEPTACLES
- CA COMPRESSED AIR
- PW POTABLE WATER

EQUIPMENT LEGEND

1. GRIT BLAST 80 PSI/10 CFM
2. WORK BENCH
3. WORK BENCH EXHAUST PLENUM
4. IPCS
5. OVEN, 220 VOLT 3ϕ
6. STORAGE RACK
7. ALKALINE CLEANER WITH VENT
8. SOLVENT WIPE WITH VENT
9. RINSE TANK
10. "A" FRAME/HOIST
11. DISTILLED WATER TANK WITH PUMP
12. CHEMICAL PUMP
13. WASTE DRUMS

4' 0 4' 8' 12' 16' 20'

1" / 8 = 1'-0"

NOV 0 9 1988

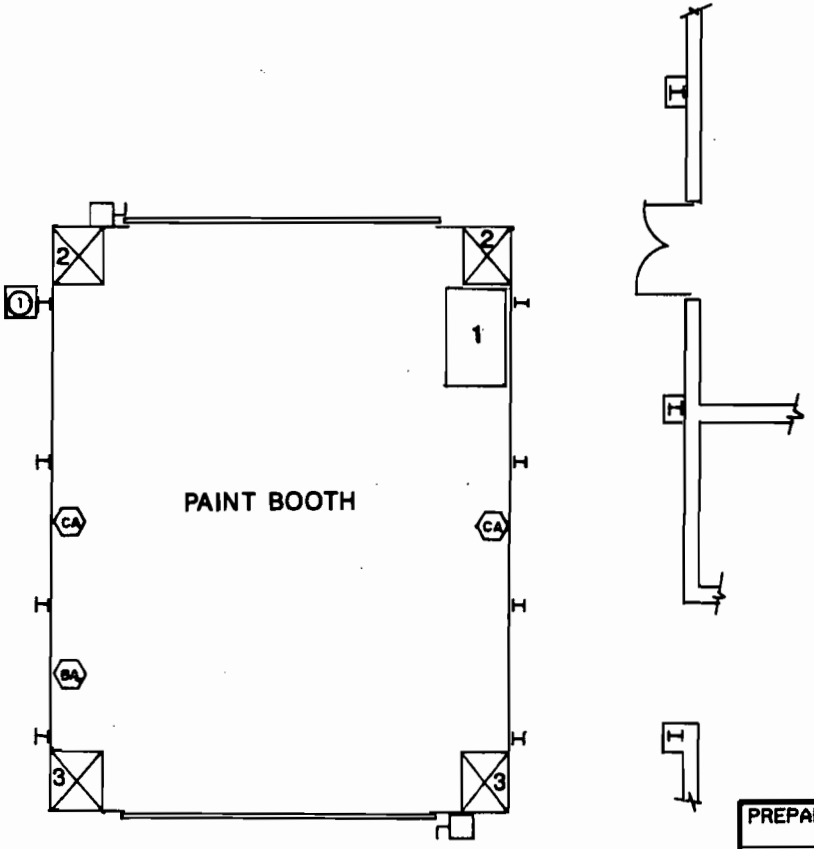
PREPARED	YR MO DAY 88.9.21	SIZE B	FSCM NO. 55340	DWG NO. HRN-FIDD-002
CHECKER		SCALE 1/8" = 1'-0"		SHEET 3
DESIGN ENGR				

FACILITY SERVICE LEGEND

- (CA) COMPRESSED AIR (3/8" QD)
- (BA) BREATHING AIR
- DOOR SWITCH
- (1) PAINT BOOTH CONTROL PANEL

EQUIPMENT LEGEND

1. WORK BENCH
2. EXHAUST PLENUM
3. INTAKE PLENUM

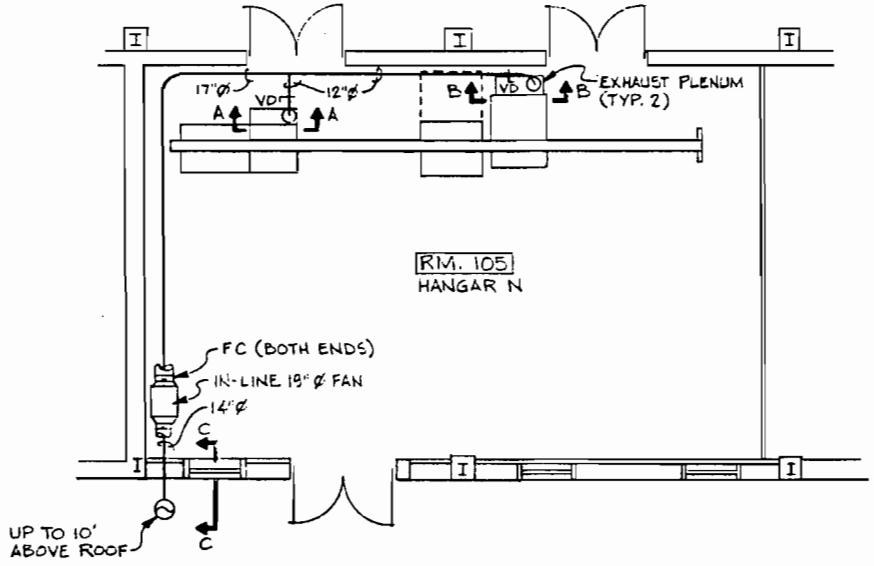


4' 0 4' 8' 12' 16' 20'

1" / 8 = 1'-0"

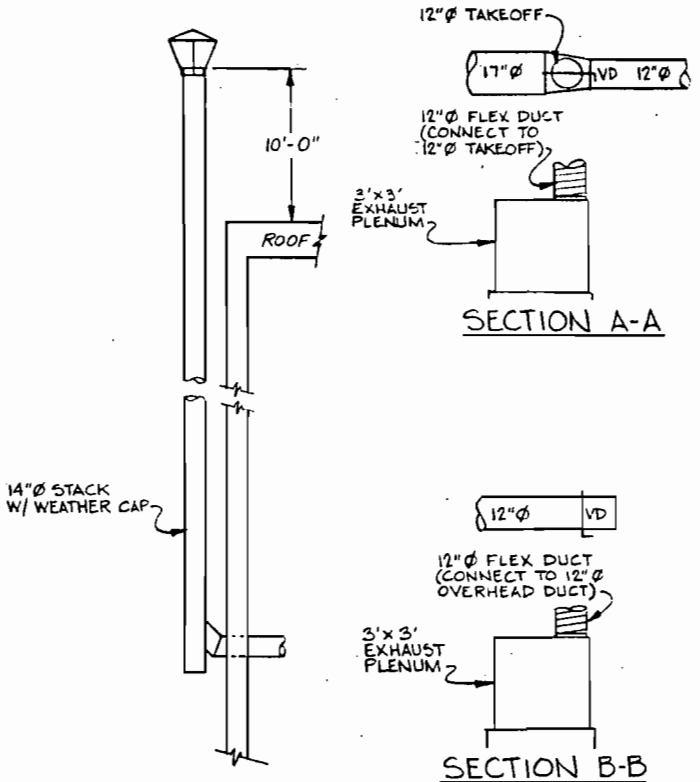
NOV 0 8 1988

PREPARER	YR MO DAY 88 7 21	SIZE B	FSCM NO. 55340	DWG NO. HRN-FIDD-002	
CHECKER		SCALE 1/8" = 1'-0"			SHEET 4
DESIGN ENGR					



RM. 105 VENTILATION – HANGAR N

NOT TO SCALE



DETAILS

NOT TO SCALE

UNITED TECHNOLOGIES
USBI Booster Production Company, Inc.

FACILITIES ENGINEERING DRAWING NO. 0186
REPORT NO. FER-405
SHEET 1 OF 1

REVISIONS	DATE

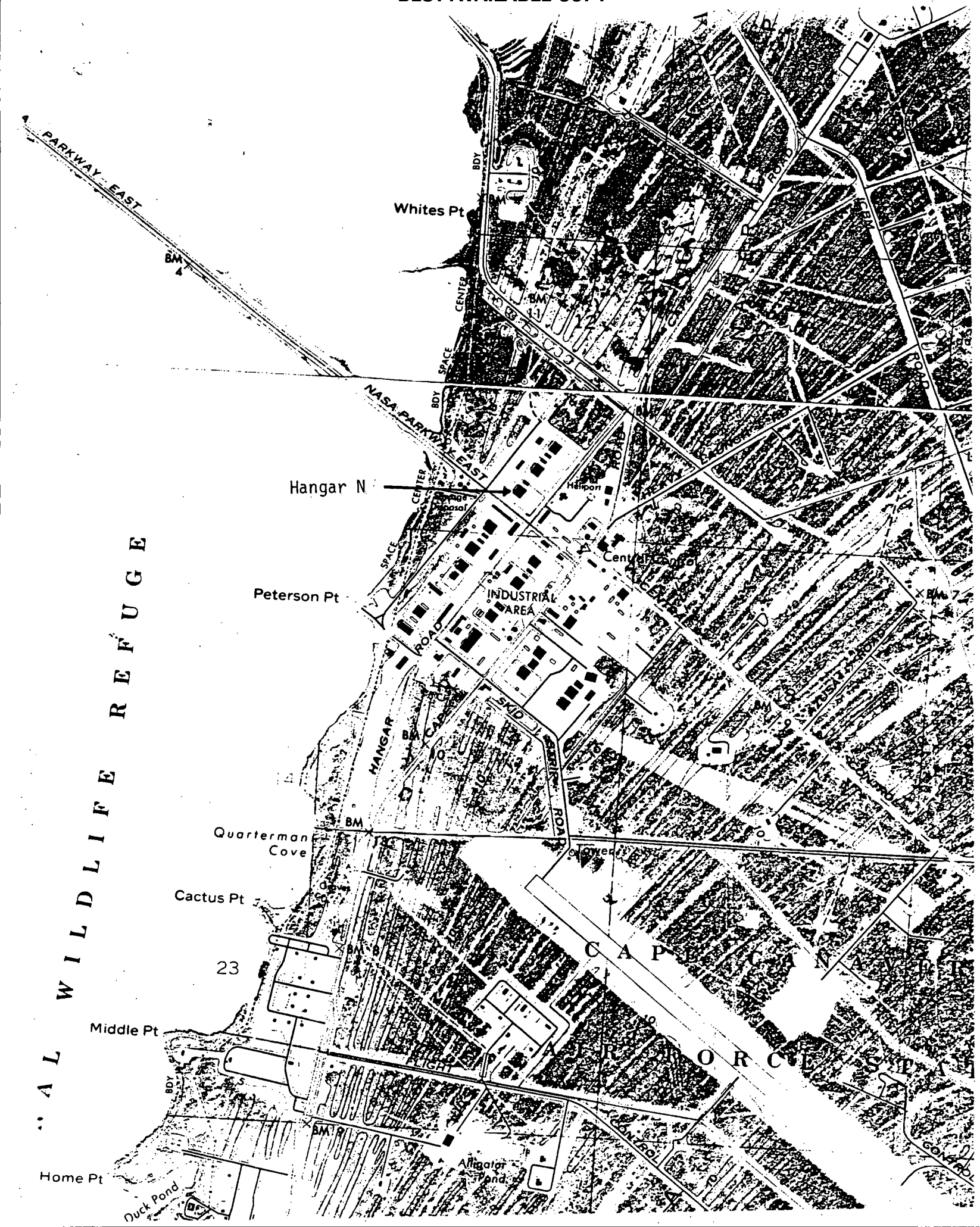
DRAWN BY
DATE 11-9-88
CHECKED BY
DATE
APPROVED BY
DATE 11-9-88
SCALE NOT TO SCALE

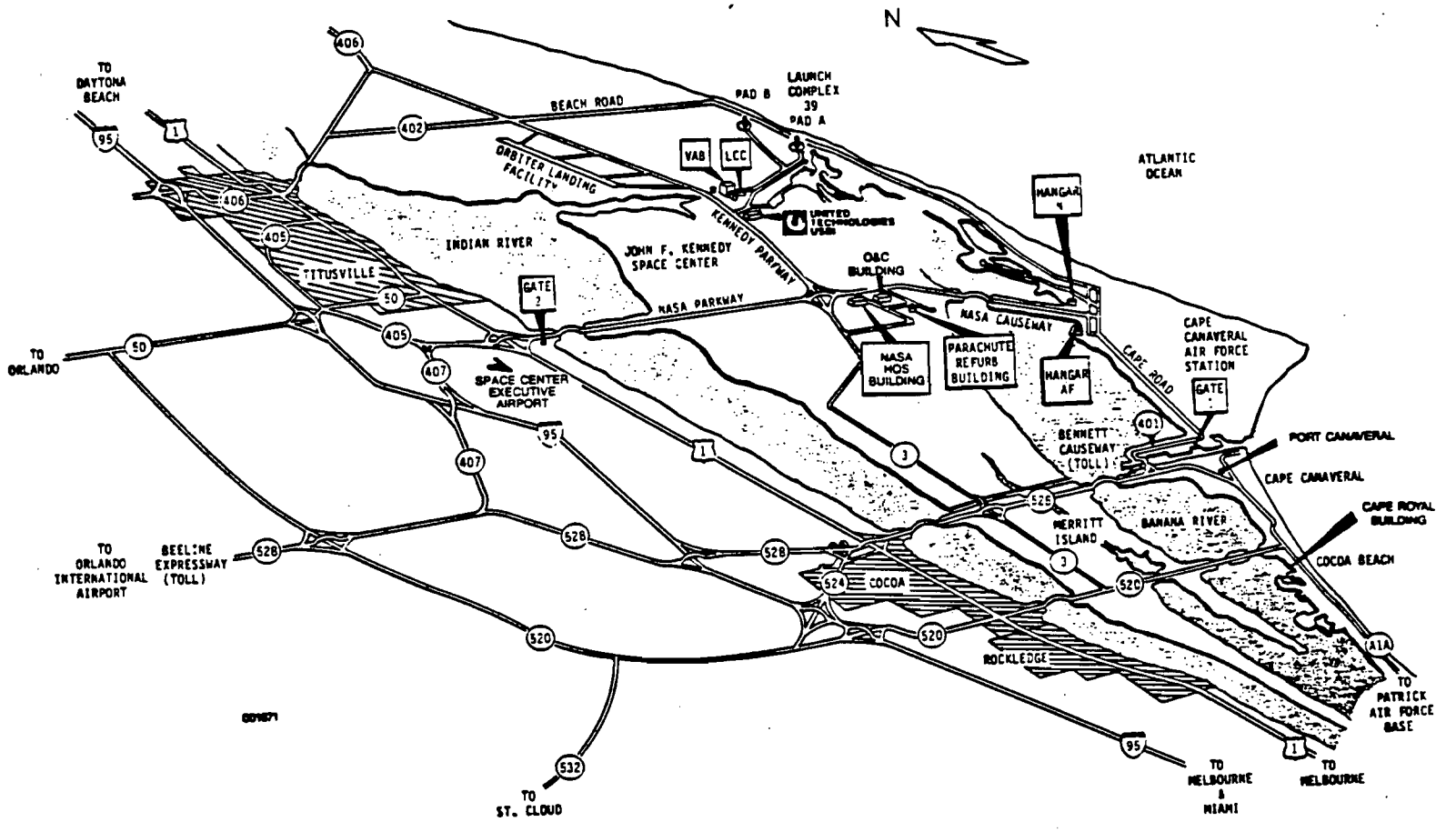
PROJECT
SOLID ROCKET BOOSTER ASSEMBLY
AND REFURBISHMENT FACILITY

SHEET TITLE
RM. 105 VENTILATION
HANGAR N

BPC 5402 (86/12)

BEST AVAILABLE COPY





UNITED TECHNOLOGIES USBI

ATTACHMENT E

MATERIAL SAFETY DATA SHEETS FOR LUBE-LOK PROCESS

MATERIAL SAFETY DATA SHEET

EFFECTIVE DATE: MARCH 1, 1986

BEST AVAILABLE COPY

PRODUCT NAME:	ISOPROPANOL, ANHYDROUS		
CHEMICAL NAME:	Isopropyl Alcohol	CHEMICAL FAMILY:	Alcohols
FORMULA:	$(CH_3)_2CHOH$	MOLECULAR WEIGHT:	60.10
SYNONYMS:	2-propanol; dimethyl carbinol		
DEPARTMENT OF TRANSPORTATION	Hazard Classification Shipping Name	Flammable Liquid Isopropanol	
CAS # 67-63-0	CAS NAME	2-Propanol	

[illegible]

BOILING POINT, 760 mm Hg	82.26°C (180.07°F)	FREEZING POINT	-88.5°C (-127.3°F)
SPECIFIC GRAVITY (H_2O = 1)	0.7864 at 20/20°C	VAPOR PRESSURE at 20°C	33 mm Hg
VAPOR DENSITY (air = 1)	2.07	SOLUBILITY IN WATER, % by wt.	Complete at 20°C
PERCENT VOLATILES BY VOLUME	100	EVAPORATION RATE (Butyl Acetate = 1)	2.88
APPEARANCE AND ODOR	Colorless liquid; characteristic odor		

[illegible] INGREDIENTS

MATERIAL	%	TLV	HAZARD
Isopropanol	~100	400 ppm	Eye irritant; Flammable

[illegible] FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	53°F, Tag Closed Cup, ASTM D 56; 63°F, Tag Open Cup, ASTM D 1310				
FLAMMABLE LIMITS IN AIR, % by volume	LOWER	2.0	UPPER	12.7 at 200°F	
EXTINGUISHING MEDIA	Apply alcohol-type or all-purpose-type foams by manufacturers' recommended techniques for large fires; carbon dioxide or dry chemical media for small fires.				
SPECIAL FIRE FIGHTING PROCEDURES	Use self-contained breathing apparatus and protective clothing.				
UNUSUAL FIRE AND EXPLOSION HAZARDS	Vapors form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equip., static discharges, or other ignition sources at locations distant from handling point.				

EMERGENCY PHONE NUMBER - 1-800-UCC-HELP - This number is available days, nights, weekends, and holidays.

V. REACTIVITY DATA

STABILITY			
UNSTABLE	STABLE	CONDITIONS TO AVOID	Heat; sparks; flame
	X		

INCOMPATIBILITY (materials to avoid)	Avoid concentrated nitric and sulfuric acids, strong oxidizers, aldehydes, halogens, and halogen compounds.
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS	Burning may produce carbon monoxide and/or carbon dioxide.

HAZARDOUS POLYMERIZATION			
May Occur	Will Not Occur	CONDITIONS TO AVOID	None
	X		

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Extinguish and do not turn on any ignition source until area is determined to be free from explosion or fire hazards. Collect large spills for disposal. Flush small spills with water.
WASTE DISPOSAL METHOD	Incinerate in a furnace where permitted under appropriate Federal, State, and local regulations. See Section IX.

VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION	Self-contained breathing apparatus in high concentrations.
VENTILATION	This product should be confined within closed equipment, in which case general (mechanical) room ventilation should be satisfactory. Special, local ventilation is needed at points where vapors can be expected to escape to the workplace air.

PROTECTIVE GLOVES	Butyl	EYE PROTECTION	Monogoggles
OTHER PROTECTIVE EQUIPMENT	Eye bath; safety shower		

IX. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Keep away from heat, sparks, and flame. Avoid contact with eyes. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

FOR INDUSTRY USE ONLY

OTHER PRECAUTIONS
At very low concentrations in water (~10 ppm), isopropanol is readily biodegradable in a wastewater treatment plant.

V. HEALTH HAZARD DATA

TLV AND SOURCE

400 ppm, ACGIH 1985-6; OSHA 29 CFR, para. 1910.1000, Table Z-1

EFFECTS OF ACUTE OVEREXPOSURE

SWALLOWING	Slightly toxic. Ingestion of a large quantity may cause drowsiness and loss of consciousness. Stomach cramps, pain, nausea, vomiting, and diarrhea may also occur.
SKIN ABSORPTION	No evidence of adverse effects from available information.
INHALATION	Low concentrations may cause mild irritation of eyes, nose, and throat. Concentrations above the TLV may result in headache and drowsiness.
SKIN CONTACT	Prolonged contact may cause drying and cracking of skin.
EYE CONTACT	Causes slight to moderate irritation, with possible corneal injury.

EFFECTS OF REPEATED OVEREXPOSURE

No evidence of adverse effects from available information.

OTHER HEALTH HAZARDS

None currently known.

EMERGENCY AND FIRST AID PROCEDURES

SWALLOWING	Give two glasses of water and induce vomiting. If a significant quantity has been swallowed, get medical attention promptly.
SKIN	Remove contaminated clothing and flush skin with water.
INHALATION	Remove to fresh air. If breathing stops, give artificial respiration and get medical attention as soon as possible.
EYES	Flush eyes immediately with large quantities of water. Get medical attention.

NOTES TO PHYSICIAN
There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition.

TURCO PRODUCTS, INC.
MATERIAL SAFETY DATA SHEET

PENNWALT

DO NOT DUPLICATE

SECTION I — PRODUCT NAME: Turco 4215 NC-LT 4215-40 jr

Manufacturer's Name:	**TURCO PRODUCTS, INC.**
Address:	**7300 Bolsa Ave., Westminster, CA 92684-3600**
Emergency Telephone No.:	**(614) 387-6200 Info. Tel. No. (714) 890-3600**

SECTION II — HAZARDOUS INFORMATION:

COMPONENTS	C.A.S. Number	CERCLA RQ SPILL lbs.	RCRA Waste No.	ACGIH TLV	OSHA TWA	%, WT.
Sodium tetraborate pentahydrate	1330434	NtLstd	NtLstd	1 mg/m³	Nt Estab	45
Sodium tripoly phosphate	13573187	NtLstd	NtLstd	Nt Estab	Nt Estab	35
Sodium silicofluoride	16893859	NtLstd	NtLstd	25mg/m³(F)	Nt Estab	1(F)
Nonyl phenol Polyethylene glycol ether*	26027383	NtLstd	NtLstd	Nt Estab	Nt Estab	5
*listed as irritant only						

CARCINOGENS (As defined in 29CFR 1910-1200)	NTP	IARC	OSHA
Contains no components defined to be carcinogens	Not listed	Not listed	Not regulated

PROPER SHIPPING NAME:	HAZARD CLASS:	HAZARD I.D. No.:
Not a DOT hazardous material	Not regulated	None

SECTION III — PHYSICAL DATA:

BOILING POINT, °F:	Not applicable	SPECIFIC GRAVITY:	Not applicable
VAPOR PRESSURE (mmHg):	Not applicable	VOLATILE, % BY VOL.:	Not applicable
VAPOR DENSITY (AIR = 1):	Not applicable	EVAPORATION RATE (Bu. Ac. = 1):	Not applicable
APPEARANCE AND ODOR: White free flowing powder, mild odor		SOLUBILITY IN WATER: Appreciable pH of 3% Soln: 8-10	

SECTION IV — FIRE AND EXPLOSION HAZARDS:

FLASH POINT AND METHOD USED:
Not applicable - Nonflammable

EXTINGUISHING MEDIA:
Not applicable

SPECIAL FIRE FIGHTING PROCEDURE AND PRECAUTIONS:
Use self-contained respiratory protection.

UNUSUAL FIRE AND EXPLOSION HAZARDS:
None

RECEIVED
NOV. 23 1987 JC
USBI-BPC SAFETY

SECTION V — HEALTH, EMERGENCY AND FIRST AID INFORMATION:

EFFECTS OF OVER EXPOSURE: EYES:
Contact with eyes may cause moderate to severe irritation.

SKIN:
May cause moderate to severe irritation.

INHALATION:
Inhalation of product dust or mist from solution may cause moderate to severe irritation of respiratory tract.

INGESTION:
Moderate to severe irritation of gastrointestinal tract.

MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED:
None known

NO: N-121A

FIRST AID: EYES: Flush eyes with large volumes of water for at least 15 minutes. If irritation persists, obtain medical attention.

SKIN: Flush affected area with clean cool water. Wash with soap and water. Rinse thoroughly. If irritation persists or blistering occurs, obtain medical attention.

INHALATION: Remove to fresh air. If breathing is difficult, administer oxygen. Obtain medical attention if irritation persists.

INGESTION: Do not induce vomiting. If victim is conscious, dilute by giving large volumes of milk or water. Obtain immediate medical attention. Never attempt to give anything by mouth to an unconscious person.

PRIMARY ROUTES OF ENTRY: INHALATION X SKIN CONTACT X OTHER _____

SECTION VI — REACTIVITY DATE:

STABILITY: STABLE X UNSTABLE _____ HAZARDOUS POLYMERIZATION WILL NOT OCCUR

CONDITIONS TO AVOID:
Contact with strong acid, strong caustic, strong oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS:
None

SECTION VII — SPILL, LEAK AND DISPOSAL PROCEDURE:

SPILL OR RELEASE PROCEDURE: CONCENTRATE: Cleanup personnel should use appropriate protective equipment. Shovel dry spill into drums for disposal. Keep spill dry until as much as possible has been swept up and shoveled into disposal drums. Residual amounts may be flushed to sewer with water if local regulations permit.

USE SOLUTION:
Confine spill. Stop leak at source if this can be done safely. Ventilate area. Pump liquid into drums for disposal. Absorb remaining liquid onto inert absorbent and place in sealable containers for disposal. Wash area with water. Residual amounts may be flushed to sewer if local regulations permit.

DISPOSAL INFORMATION: CONCENTRATE: (1) Transfer to reclaiming center for recycling or reuse, if possible. (2) Transfer to licensed disposal site for disposition under applicable local, state and regional regulations.

SPENT SOLUTION AND RINSES:
Dispose per (1) or (2) above, or spent solution and rinses can be neutralized and floatable soil separated. Residual organic matter may be removed by oxidation and/or carbon treatment. Treat to remove phosphates if required. Clarified water may be released to sewer if local regulations permit.

SECTION VIII — SPECIAL PROTECTION INFORMATION:

RESPIRATORY PROTECTION: For dust or mist conditions, a NIOSH-approved respirator for dusts and mists is advised. If respirators are used, a formal training and screening program must be initiated. See CFR 1910-134.

VENTILATION:
Maintain sufficient mechanical ventilation to keep particulate concentration below TLV.

PROTECTIVE EQUIPMENT: CHEMICAL FACE SHIELD OR GOGGLES: X GLOVES X BOOTS X APRON X PROTECTIVE SUIT Not normally required but advised if necessary to avoid prolonged or repeated skin contact.

GLOVES, BOOTS, APRON AND SUIT MADE FROM: ~~Neoprene~~ or other impervious material

RECOMMENDED PERSONAL HYGIENE: Wash hands and face with soap and water before smoking or eating. Immediately remove all contaminated clothing. Launder before reuse. Do not launder at home.

SECTION IX — OTHER INFORMATION:

SPECIAL PRECAUTIONS — STORAGE AND HANDLING:

Store in dry protected area.

MIXING:

Use care to avoid splashing and any skin or eye contact.

REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT: Relieve any pressure. Cover openings to avoid spurting. Flush interior and exterior with water. Collect flushings for disposal. Use appropriate protective equipment for eyes, skin and inhalation.

DATE PREPARED: 7/22/87 DATE REVIEWED:

APPROVED: Q.C. DEPT./ JFG R & D DEPT./ mcw SAFETY & ENVIRON. EEV

TMSDS 4-6/86

Material Safety Data Sheet

PPG Industries, Inc.
One PPG Place
Pittsburgh, PA 15272

Approved by U.S. Dept. of Labor as "Essentially similar" to Form OSHA-20

Date: December, 1984	Edition: Seventh
Chemical Name and Synonyms: 1,1,1-trichloroethane; methylchloroform CAS No. 71-55-6	Trade Name and Synonyms: Tri-Ethane®
Chemical Family: Halogenated Hydrocarbons	Formula: CH_3CCl_3
DOT Shipping Name: See Comments, Page 2	DOT Hazard Class: See Comments, Page 2
Reportable Quantity: N/A I. D. Number: See Comments, Page 2	Subsidiary Risk: N/A

SECTION 1 • PHYSICAL DATA

Boiling Point @ 760 mm Hg: 72°C Boiling Range 72°C-88°C	Vapor Density (Air=1): 4.54	Specific Gravity (H_2O=1): 1.300-1.320 @ 25/25°C	pH of Solutions: 6.0 to 7.5
Freezing/Melting Point: -45°C	Solubility (Weight % in Water): Negligible	Bulk Density: 10.80-10.97 lbs./gal. @ 25°C	Volume % Volatile: 100
Vapor Pressure: 135mmHg @ 25°C	Evaporation Rate (ethyl ether=1): 0.35	Heat of Solution: Not Applicable	Appearance and Odor: Clear, colorless liquid with ether-like odor

SECTION 2 • HAZARDOUS INGREDIENTS

	%	
1,1,1-trichloroethane (Stabilized)	100	

SECTION 3 • FIRE AND EXPLOSION HAZARD DATA

Flash Point °F (Method Used)	Flammable Limits in Air (% by Volume)	Extinguishing Media:
None when tested in accordance with DOT requirements	LEL: 7% UEL 15% (See Below)	Water, dry chemicals or carbon dioxide

Special Fire Fighting Procedures: Fire fighters should wear NIOSH/MSHA-approved pressure-demand, self-contained breathing apparatus for possible exposure to hydrogen chloride and possible traces of phosgene.

Unusual Fire and Explosion Hazards: Vapors concentrated in a confined or poorly ventilated area can be ignited upon contact with a high energy spark, flame, or high intensity source of heat. This can occur at concentrations ranging between 7-15% by volume. Decomposition or burning can produce hydrogen chloride or possibly traces of phosgene.

SECTION 4 • HEALTH HAZARD DATA

Toxicity Data	Classification (Poison, Irritant, Etc.)
LC_{50} Inhalation See References 1-7 (rat) 8,000 ppm/7 hours	Inhalation: Slightly Toxic
LD_{50} Dermal (rabbit) >15 g/kg	Skin Not Significantly Toxic
Skin/Eye Irritation See Section 5	Skin/Eye: Liquid mildly irritating to skin; eye irritant
LD_{50} Ingestion (rat) 10-12 g/kg (rabbit; guinea pig) 5.6-9.5 g/kg	Ingestion: Not Significantly Toxic
Fish, LC_{50} (Lethal Concentration) Unknown	Aquatic: Unknown

SECTION 5 • EFFECTS OF OVEREXPOSURE

This section covers effects of overexposure for inhalation, eye/skin contact, ingestion and other types of overexposure information in the order of the most hazardous and the most likely route of overexposure.

Permissible Exposure Limits: Current OSHA permissible exposure limit is 350 ppm, 8-hour TWA(time-weighted average); 29CFR 1910.1000

ACGIH: 350 ppm, 8-hour TWA (time-weighted average); 450 ppm, STEL, (15-minute short-term exposure limit).

PPG Internal Permissible Exposure Limit: 350 ppm, 8-hour TWA (time-weighted average); 450 ppm, STEL (15-minute short-term exposure limit).

ACUTE

Inhalation: Tri-Ethane® is primarily a central nervous system depressant. Inhalation can cause irritation of the respiratory system, dizziness, nausea, lightheadedness, headache, loss of coordination and equilibrium, unconsciousness, possible central nervous system damage and even death in confined or poorly ventilated areas. Fatalities following severe acute exposure to various chlorinated solvents have been attributed to ventricular fibrillation.

Eye/Skin: Liquid splashed in the eye can result in discomfort, pain and irritation. Prolonged or repeated contact with liquid on the skin can cause irritation and dermatitis. The problem may be accentuated by liquid becoming trapped against the skin by contaminated clothing and shoes, and skin absorption can occur.

Ingestion: Swallowing of this material may result in irritation of the mouth and GI tract with other effects as listed above for Inhalation. Vomiting and subsequent aspiration into the lungs may lead to chemical pneumonia and pulmonary edema which is a potentially fatal condition.

CHRONIC

Tri-Ethane® has been extensively studied for cancer potential. There is no documented evidence to suggest that Tri-Ethane® causes an increased cancer incidence in humans or animals. The EPA's Science Advisory Board concluded that there is no evidence to suggest carcinogenic activity for Tri-Ethane®.

References (continued)

5. Toxicity and Metabolisms of Industrial Solvents, Browning, 1965
6. Toxicology, the Basic Science of Poisons, Casarett and Doull, 1975
7. EPA Science Advisory Board, Subcommittee on Airborne Carcinogens, September, 1980
8. Encyclopedia of Chemical Technology, Volume 5, Third Edition, Kirk-Othmer, 1979
9. NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards, DHHS (NIOSH) Publication No. 81-123, January, 1981
10. NIOSH/OSHA Pocket Guide to Chemical Hazards, DHEW (NIOSH) Publication No. 78-210, September, 1978

COMMENTS: Only regulated when shipped by air. DOT Shipping Name is 1,1,1-trichloroethane, DOT Hazard Class is ORM-A, and UN Number is UN2831.

EMERGENCY AND FIRST AID PROCEDURES:

Inhalation: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

Eye or Skin Contact: Flush eyes and skin with plenty of water (soap and water for skin) for at least 15 minutes, while removing contaminated clothing and shoes. If irritation occurs, consult a physician. Thoroughly clean contaminated clothing and shoes before reuse or discard.

Ingestion: If conscious, drink large quantities of water. DO NOT induce vomiting. Take immediately to a hospital or physician. If unconscious, or in convulsions, take immediately to a hospital. DO NOT attempt to give anything by mouth to an unconscious person.

Notes to Physician (Includes Antidotes) NEVER administer adrenalin following Tri-Ethane® overexposure. Increased sensitivity of the heart to adrenalin may be caused by overexposure to Tri-Ethane®.

SECTION 6 • REACTIVITY DATA

Stability: Stable	**Conditions to Avoid:** Avoid open flames, hot glowing surfaces or electric arcs.
Hazardous Polymerization: Will not occur.	**Conditions to Avoid:** None

Incompatibility (Materials to Avoid): Avoid mixing with caustic soda, caustic potash, or oxidizing materials. Shock sensitive compounds may be formed.

Hazardous Decomposition Products: Hydrogen chloride and possibly traces of phosgene.

SECTION 7 • SPILL OR LEAK PROCEDURES

Steps to be Taken if Material is Spilled or Released: Immediately evacuate the area and provide maximum ventilation. Unnecessary personnel should move upwind of spill. Only personnel equipped with proper respiratory and skin/eye protection (See Section 8) should be permitted in area. Dike area to contain spill. Take precautions as necessary to prevent contamination of ground and surface waters. Recover spilled material on adsorbents, such as sawdust and vermiculite, and sweep into closed containers for disposal. After all visible traces, including ignitable vapors, have been removed, thoroughly wet vacuum the area. DO NOT flush to sewer. If area of spill is porous, remove as much contaminated earth and gravel, etc. as necessary and place in closed containers for disposal.

Waste Disposal Method:

Contaminated sawdust, vermiculite, or porous surfaces must be disposed of in a permitted hazardous waste management facility. Recovered liquids may be reprocessed or incinerated or must be treated in a permitted hazardous waste management facility. Care must be taken when using or disposing of chemical materials and/or their containers to prevent environmental contamination. It is your duty to dispose of the chemical materials and/or their containers in accordance with the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, as well as any other relevant federal, state, or local laws/regulations regarding disposal.

RCRA - Hazardous Waste Number - U-226

SECTION 8 • SPECIAL PROTECTION INFORMATION

Respiratory Protection: Use a half or full facepiece organic vapor chemical cartridge or canister respirator when concentrations exceed permissible limits. Use self-contained breathing apparatus (SCBA) or full facepiece airline respirator with auxiliary SCBA operated in the pressure-demand mode for emergencies and for all work performed in storage vessels, poorly ventilated rooms, and other confined areas. Respirators must be approved by NIOSH or MSHA. The respirator use limitations made by NIOSH/MSHA[9,10] and by the manufacturer must be observed. Respiratory protection programs must be in accordance with 29CFR 1910.134.

Ventilation (Type): Use local exhaust or dilution ventilation as appropriate to control exposures to below permissible limits.

Eye Protection: Splashproof goggles

Gloves: Viton®. For limited service only: Polyvinyl alcohol*, Nitrile, Butyl, Neoprene. *(degrades in water)

Other Protective Equipment: Boots, aprons, or chemical suits should be used when necessary to prevent skin contact. Personnel protective clothing and use of equipment must be in accordance with 29CFR 1910.133 and 29CFR 1910.132.

SECTION 9 • SPECIAL PRECAUTIONS

Precautions to be Taken During Handling and Storing:

- Do not use in poorly ventilated or confined areas without proper respiratory protection (See Section 8).
- Tri-Ethane® vapors are heavier than air and will collect in low areas.
- Keep container closed when not in use.
- Store only in closed, properly labeled containers.
- Liquid oxygen or other strong oxidants may form explosive mixtures with Tri-Ethane®.
- This material or its vapors when in contact with flames, hot glowing surfaces, or electric arcs can decompose to form hydrogen chloride and possibly traces of phosgene.
- AVOID CONTAMINATION OF WATER SUPPLIES. Handling, storage, and use procedures must be carefully monitored to avoid spills or leaks. Any spill or leak has the potential to cause underground water contamination which may, if sufficiently severe, render a drinking water source unfit for human consumption. Contamination that does occur cannot be easily corrected.
- Do not store or stack aluminum in contact with Tri-Ethane® to prevent possible solvent decomposition (stacking corrosion).
- Caution should be taken not to use in pressurized or totally enclosed system of aluminum construction. Example: paint or adhesive spray system.
- A chlorinated solvent used as a flashpoint suppressant must be added in sufficient quantity or the resultant mixture may have a flashpoint lower than the flammable component.
- Do not use cutting or welding torches on empty drums that contained Tri-Ethane® unless properly purged and cleaned.

Other Precautions:

- Do not breathe vapors. High vapor concentrations can cause dizziness, unconsciousness, possible central nervous system damage or death.
- Use only with adequate ventilation. Ventilation must be sufficient to limit employee exposure to Tri-Ethane® below permissible exposure limits. Observance of lower limits (outlined in Section 5) is advisable.
- Avoid contact with eyes. Will cause irritation and pain.
- Avoid prolonged or repeated contact with skin. May cause irritation or dermatitis.
- Do not swallow. Swallowing may cause injury or death.
- Do not eat, drink, or smoke in work areas.

References:

1. NIOSH Registry of Toxic Effects of Chemical Substances, 1975
2. Industrial Hygiene and Toxicology, Volume II, Second Edition, F. A. Patty, 1963
3. Dangerous Properties of Industrial Materials, Fourth Edition, N. I. Sax, 1975
4. Industrial Toxicology, Hamilton and Hardy, 1974 (References continued on page 2)

10-6.44-00

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

EM® Corporation
subsidiary of Great Lakes Chemical Corp.
P.O. Box 2200, West Lafayette, IN 47906
Call Toll Free 1-800-428-7802, In Indiana (317) 463-2511

MAI ... O.
ADI ...

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
SOLID FILM LUBRICANT - DRY FILM LUBE	LUBE-LOK 1000 CONCENTRATE
CHEMICAL FAMILY	**FORMULA**
CERAMIC COATING	PROPRIETARY

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS N/A	%	TLV (Units)
PIGMENTS * SEE BELOW	36	0 ppm	BASE METAL		
CATALYST	0		ALLOYS		
VEHICLE	0		METALLIC COATINGS		
SOLVENTS Xylene	64	100 ppm	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES	0		OTHERS		
OTHERS	0				

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
* PIGMENTS: CERAMIC POWDER	12.0	UNKN.
LEAD OXIDE	12.0	0 ppm
GRAPHITE	12.0	HIGH

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	281	SPECIFIC GRAVITY (H_2O=1)	0.871
VAPOR PRESSURE (mm Hg.)	10mm @28° C	PERCENT, VOLATILE BY VOLUME (%)	65
VAPOR DENSITY (AIR=1)	3.7	EVAPORATION RATE (Butyl Acetate =1	14.2
SOLUBILITY IN WATER	Not Soluble		
APPEARANCE AND ODOR	DARK GRAY - PAINT ODOR		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	Lel	Uel
74°F TCC		1.1%	7%

EXTINGUISHING MEDIA: FOAM, CARBON DIOXIDE, OR DRY CHEMICAL

SPECIAL FIRE FIGHTING PROCEDURES: NONE

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

(Continued on reverse side)

P&D 122

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	Ø ppm IN AIR
EFFECTS OF OVEREXPOSURE	BREATHING OF SPRAY MIST MAY CAUSE LEAD-POISONING
EMERGENCY AND FIRST AID PROCEDURES	NONE

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATABILITY (Materials to avoid)	NONE		
HAZARDOUS DECOMPOSITION PRODUCTS	NONE		
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

WIPE UP AND DISPOSE OF WIPING MATERIALS IN FIRE-SAFE CONTAINERS

WASTE DISPOSAL METHOD

DO NOT INCINERATE - DUMP IN APPROVED SITE.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) FILTER MASK RECOMMENDED

VENTILATION: MODERATE RATE	LOCAL EXHAUST: X	SPECIAL: -
	MECHANICAL (General): EXPLOSION PROOF	OTHER: -

PROTECTIVE GLOVES: NOT REQUIRED	EYE PROTECTION: SAFETY GLASSES

OTHER PROTECTIVE EQUIPMENT: NONE

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

KEEP AWAY FROM HEAT AND OPEN FLAME

OTHER PRECAUTIONS: NONE

GPO 934-180

10-647-00

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

EM Corporation
subsidiary of Great Lakes Chemical Corp.
P.O. Box 2200, West Lafayette, IN 47906
Call Toll Free 1-800-428-7802, In Indiana (317) 463-2511

MA NO.

AD

CHEMICAL NAME AND SYNONYMS	TRADE NAME AND SYNONYMS
SOLID FILM LUBRICANT	LUBE-LOK 2006 CONCENTRATE
CHEMICAL FAMILY	**FORMULA**
(SILICONE RESIN)	SILICONE RESIN, MoS_2 AND GRAPHITE

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS MoS_2 & GRAPHITE	20	Very High	BASE METAL		
CATALYST	0.		ALLOYS		
VEHICLE Silicone Resin	15	Not Estb.	METALLIC COATINGS		
SOLVENTS XYLENE/ETHYL AMYL KETONE	65	100ppm	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES	0.		OTHERS		
OTHERS	0.				

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
XYLENE	59	100ppm
ETHYL AMYL KETONE	6	25ppm

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	139	SPECIFIC GRAVITY (H_2O=1)	1.08
VAPOR PRESSURE (mm Hg.) 28.3°C	10	PERCENT, VOLATILE BY VOLUME (%)	65
VAPOR DENSITY (AIR=1)	3.66	EVAPORATION RATE (N-Butyl Acetate = 1	0.75
SOLUBILITY IN WATER Negligible			
APPEARANCE AND ODOR Grey	Odor - Aromatic		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) 69°F		FLAMMABLE LIMITS	Lel 1.1 / Uel 7.0
EXTINGUISHING MEDIA	Foam, Dry Chemicals, CO_2, Water Spray or Fog		
SPECIAL FIRE FIGHTING PROCEDURES	Cool Exposed Containers With Water		
UNUSUAL FIRE AND EXPLOSION HAZARDS			
Combustible - Do Not Store or Mix With Strong Oxidants			

(Continued on reverse side)

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 100 PPM

EFFECTS OF OVEREXPOSURE: Inhalation of high concentrations may have results ranging from mild depression to convulsions and loss of consciousness.

EMERGENCY AND FIRST AID PROCEDURES: If overcome by vapor, remove from exposure immediately, call a physician. If breathing is irregular or stopped, start resuscitation, administer oxygen. Remove contaminated clothing & wash skin. Flush eyes with water until irritation subsides.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	XX	High temperature or heat.

INCOMPATABILITY (Materials to avoid): Oxygen & strong oxidants. May dissolve some plastics and rubber.

HAZARDOUS DECOMPOSITION PRODUCTS: Incomplete combustion produces carbon monoxide.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	XX	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Remove all ignition sources. Keep people away. Recover free liquid. Add absorbent to spill area. Avoid breathing vapors. Ventilate enclosed spaces. Open all windows and doors.

WASTE DISPOSAL METHOD: Recover free liquid. Stay upwind and/or use personal protective equipment. Absorb with dry solids and incinerate. Run-off to waterway creates fire hazard; notify fire and health agencies.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Hydrocarbon vapor canister; supplied-air or a hose mask.

VENTILATION	LOCAL EXHAUST: Face velocity > 60 fpm	SPECIAL: Use only with adequate*ventilation.
	MECHANICAL (General): Explosion-proof ventilation equipment	OTHER: No smoking or open lights

PROTECTIVE GLOVES: Normally not required.	EYE PROTECTION

OTHER PROTECTIVE EQUIPMENT: Normally not required.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Keep containers closed. Keep away from heat and open flame. Use only with adequate* ventilation.

OTHER PRECAUTIONS: Avoid prolonged or repeated breathing of vapors or contact with skin.

GPO 834-190

*ADEQUATE MEANS EQUIVALENT OF OUTDOORS VENTILATION

ATTACHMENT F

MATERIAL SAFETY DATA SHEETS FOR GSE PAINTING PROCESS

MATERIAL SAFETY DATA SHEET

FOR COATINGS, RESINS AND RELATED MATERIALS

Approved by U.S. Department of Labor (Essentially Similar to Form OSHA-20)

MANUFACTURERS SINCE 1901

DOZIER & GAY PAINT COMPANY

MANUFACTURING DIVISION ADDRESS

DOZIER & GAY PAINT COMPANY
2245 N. Main Street
Jacksonville, Florida 32206

Section I

EMERGENCY TELEPHONE NO. (904) 354-8251

INFORMATION TELEPHONE NO. (904) 354-8251

DATE OF PREP 4-30-86

PRODUCT CLASS Anti-Corrosive Primer

MANUFACTURER'S CODE IDENTIFICATION 605585

TRADE NAME Zinc Rich Primer

Section II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	TLV PPM	TLV mg/M³	LEL	VAPOR PRESSURE
XYLOL	3.3	100		1.0	10.0
2-Ethoxyethanol	2.6	10		N/A	3.4
ORGANIC SILICATE MIXTURE	10.3	100		N/A	3.4

Section III - PHYSICAL DATA

BOILING RANGE 81-207°F

VAPOR DENSITY 4.5 [X] HEAVIER, [ ] LIGHTER, THAN AIR

EVAPORATION RATE [ ] FASTER, [X] SLOWER, THAN ETHER

PERCENT VOLATILE BY VOLUME 33.4

WEIGHT PER GALLON 17.4

Section IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION Flammable liquid

FLASH POINT 74°F

LEL

EXTINGUISHING MEDIA Use water spray, carbon dioxide, dry chemical, alcohol-type, or universal-type foam applied by manufacturer's recommended techniques.

UNUSUAL FIRE AND EXPLOSION HAZARDS None

SPECIAL FIRE FIGHTING PROCEDURES When applying water or foam, approach fire with caution due to the organic silicate-water reaction. Use self-contained breathing apparatus, and protecting clothing.

Section V - HEALTH HAZARD DATA

HRESHOLD LIMIT VALUE

FFECTS OF OVEREXPOSURE

ACUTE

Swallowing: Slightly toxic. May cause Nausea.
Skin absorbtion: None currently known.
Inhalation: Vapors are irritating to eyes, nose and respiratory tract.
Skin Contact: May cause moderate irritation with prolonged contact.
Eye Contact: Causes moderately severe eye irritation.

CHRONIC

MERGENCY AND FIRST AID PROCEDURES

Repeated exposure to concentrations greater than 100 ppm has been shown to cause kidney damage in laboratory animals. Repeated exposure at higher concentrations may cause injury also to bone marrow, blood cells and liver.

Section VI - REACTIVITY DATA

TABILITY [ ] UNSTABLE [X] STABLE **CONDITIONS TO AVOID** Avoid heat and flames.

NCOMPATABILITY *(Materials to Avoid)*

AZARDOUS DECOMPOSITION PRODUCTS Burning can produce silicone oxides, carbon monoxide and/or carbon dioxide.

AZARDOUS POLYMERIZATION [ ] MAY OCCUR [X] WILL NOT OCCUR

ONDITIONS TO AVOID

Section VII - SPILL OR LEAK PROCEDURES

TEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Eliminate source of ignition. Water suitable protective equipment. Flush small spills with large quantities of water. Collect larger spills for disposal.

VASTE DISPOSAL METHOD Incinerate in a furnace where permitted under appropiate Federal, State and local regulations.

Section VIII - SPECIAL PROTECTION INFORMATION

ESPIRATORY PROTECTION Self-contained breathing apparatus in high concentrations.

ENTILATION To keep vapors in and keep moisture out, confine this product within closed equipment. If this is done, general (mechanical) room ventilation should be satisfactory. Where vapors may escape to workplace air, use special local ventilation.

ROTECTIVE GLOVES Butyl

YE PROTECTION Monogoggles

THER PROTECTIVE EQUIPMENT Eye bath, safety shower.

Section IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Avoid breathing vapors. Avoid contact with eyes, skin, and clothing. Keep away from heat and flame. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

OOL STORAGE CATEGORY

THER PRECAUTIONS Disposal: At very low concentrations in water, it should be feasible to biodegrade this material in a biological wastewater treatment plant.

MATERIAL SAFETY DATA SHEET

FOR COATINGS, RESINS AND RELATED MATERIALS

Approved by U.S. Department of Labor (Essentially Similar to Form OSHA-20)

MANUFACTURERS SINCE 1901

DOZIER & GAY PAINT COMPANY

MANUFACTURING DIVISION ADDRESS

DOZIER & GAY PAINT COMPANY
2245 N. Main Street
Jacksonville, Florida 32206

Section I

EMERGENCY TELEPHONE NO. (904) 354-8251

INFORMATION TELEPHONE NO. (904) 354-8251

DATE OF PREP February 28, 1986

PRODUCT CLASS Chemical Mixture

MANUFACTURER'S CODE IDENTIFICATION 392133

TRADE NAME Deco Enamel - Old Cat Yellow

Section II - HAZARDOUS INGREDIENTS

INGREDIENT	PERCENT	TLV PPM	TLV mg/M³	LEL	VAPOR PRESSURE
Mineral Spirits	44.5	200		0.7	3.9
Lead Chromate Yellow	16.4		.3		

Section III - PHYSICAL DATA

BOILING RANGE 307-389°F.

VAPOR DENSITY [X] HEAVIER, [ ] LIGHTER, THAN AIR

EVAPORATION RATE [ ] FASTER, [X] SLOWER, THAN ETHER

PERCENT VOLATILE BY VOLUME 61.2

WEIGHT PER GALLON 8.7 lbs.

Section IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION Flammable Liquid UN 1263

FLASH POINT 105°F-TCC

LEL Section II

EXTINGUISHING MEDIA

Foam CO_2 or dry chemical

UNUSUAL FIRE AND EXPLOSION HAZARDS Vapors can form an explosive mixture with air.

SPECIAL FIRE FIGHTING PROCEDURES Self contained breathing apparatus with a full face piece operated in pressure demand or other pressure mode

Section V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE Section II

EFFECTS OF OVEREXPOSURE Inhalat-ion. Anesthetic. Irritation of the respiratory tract, acute nervous system depression characterized by headache, dizziness stagering gait, confusion unconsciousness or coma. Skin or eye contact primary irritation.

EMERGENCY AND FIRST AID PROCEDURES Vapors: Move to fresh air, insure good breathing, keep warm, call a doctor. Splash: If in eyes, wash with water copiously. Call a doctor. If on skin, wash with water and remove contaminated clothing.

Section VI - REACTIVITY DATA

STABILITY [ ] UNSTABLE [X] STABLE CONDITIONS TO AVOID Heat, Open Flames. Sparks

INCOMPATABILITY *(Materials to Avoid)* St-rong oxidants, alkalis, concentrated oxygen

HAZARDOUS DECOMPOSITION PRODUCTS carbon monoxide in case of incomplete conbustion.

HAZARDOUS POLYMERIZATION [ ] MAY OCCUR [X] WILL NOT OCCUR

CONDITIONS TO AVOID

Section VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Remove all sources of ignition. Avoid breathing vapors. ventilate spill area. Use absorbent to collect small spills. Use dam or dike to contain large spills.

WASTE DISPOSAL METHOD Dispose of in accordance with local, state, and federal regulations pertaining to flammable liquids.

Section VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION in ventilated areas use an organic filter mask. In restricted area or closed area use air supplied mask.

VENTILATION General or local exhaust ventilation to keep vapors below TLV in section II and LEL in section II

PROTECTIVE GLOVES Chemical resistant gloves for repeated or prolonged contact.

EYE PROTECTION Shield eyes properly against splash.

OTHER PROTECTIVE EQUIPMENT

Section IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Do not store above 120°F. Ground all containers when transferring material from one container to another.

DOL STORAGE CATEGORY

OTHER PRECAUTIONS Warning: Flammable. Vapor Harmful. May cause eye burns. May cause irritation. Prolonged or repeated contact of liquid or breathing or vapors or mists may cause delayed and serious injury. Keep away from heat, sparks, and open flames. Use only when adequat-e ventilation. Avoid breat-hing of vapor or spray mist. Avoid contact with eyes and skin. Do not t-ake internally.

MATERIAL SAFETY DATA SHEET FOR COATINGS, RESINS, AND RELATED MATERIALS

CARBOLINE COMPANY
1401 S. Hanley Road
St. Louis, MO 63144

INFORMATION TELEPHONE NO. (314) 644-1000
CHEMTREC EMERGENCY TELEPHONE NO. (800)-424-9300
DATE OF PREPARATION: 09/12/86

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: CARBOLINE THINNER 26
PRODUCT CODE: 01-0526-0
PRODUCT CLASS: SOLVENT BLEND

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT (LABEL NAME IF DIFFERENT)	WEIGHT PERCENT	EXPOSURE LIMITS (TLV®-TWA)	(PEL)	VAPOR PRESSURE 20°C mm/Hg
1-METHOXY 2-PROPANOL (PROPYLENE GLYCOL MONO METHYL ETHER)	>1%	100 ppm	NONE	12.5
2-ETHOXY BUTANOL (ETHYLENE GLYCOL MONO BUTYL ETHER)	>1%	25 ppm	50 ppm	0.6

SECTION III - PHYSICAL DATA

BOILING RANGE: 248 - 340°F
MIXED WEIGHT/GALLON: 6 - 9 LBS./GAL. (U.S.)
VOLATILE BY WEIGHT: 98 - 100%
VOLATILE BY VOLUME: 98 - 100%
VAPOR DENSITY: IS HEAVIER THAN AIR.
EVAPORATION RATE: IS SLOWER THAN ETHER.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASSIFICATION: (OSHA): - FLAMMABLE LIQUID - CLASS IC
(DOT) : - FLAMMABLE LIQUID OR SOLID
FLASH POINT(PMCC): 93°F
LEL: 1.1

EXTINGUISHING MEDIA: DRY CHEMICAL.

UNUSUAL FIRE AND EXPLOSION HAZARD: KEEP CONTAINERS TIGHTLY CLOSED. ISOLATE FROM HEAT, SPARKS, ELECTRICAL EQUIPMENT AND OPEN FLAMES. CLOSED CONTAINERS MAY EXPLODE WHEN EXPOSED TO EXTREME HEAT.

SPECIAL FIREFIGHTING PROCEDURES: WATER MAY BE USED TO COOL CONTAINERS TO PREVENT PRESSURE BUILD-UP AND POSSIBLE AUTO-IGNITION OR EXPLOSION WHEN EXPOSED TO EXTREME HEAT. IF WATER IS USED, SPRAY NOZZLES ARE PREFERABLE. WATER SPRAY MAY BE INEFFECTIVE.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVER EXPOSURE: INHALATION:IRRITATION TO THE RESPIRATORY TRACT,HEADACHE,DIZZINESS, AND NAUSEA ARE POSSIBLE. SKIN CONTACT:PRIMARY IRRITATION. EYE CONTACT:PRIMARY IRRITATION.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE: UNKNOWN.

PRIMARY ROUTE(S) OF ENTRY: DERMAL AND INHALATION.

EMERGENCY AND FIRST AID PROCEDURES: INHALATION:REMOVE TO FRESH AIR AND RESTORE BREATHING. TREAT SYMPTOMATICALLY AND CONSULT A PHYSICIAN. SKIN CONTACT:REMOVE COATING WITH SOLVENT. IMMEDIATELY WASH AFFECTED AREA WITH SOAP AND WATER. CONSULT A PHYSICIAN IF IRRITATION PERSISTS. EYE CONTACT:FLUSH IMMEDIATELY WITH LARGE AMOUNTS OF WTER FOR AT LEAST 15 MINUTES. TAKE TO A PHYSICIAN FOR MEDICAL TREATMENT. INGESTION:DRINK 1 OR 2 GLASSES OF WATER TO DILUTE. DO NOT INDUCE VOMITING. CONSULT A PHYSICIAN OR POISON CONTROL CENTER.

SECTION VI - REACTIVITY DATA

STABILITY: THIS PRODUCT IS STABLE UNDER NORMAL STORAGE CONDITIONS.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR UNDER NORMAL CONDITIONS.

HAZARDOUS DECOMPOSITION PRODUCTS: CARBON MONOXIDE,CARBON DIOXIDE, AND POSSIBLY ALDEHYDES.

CONDITIONS TO AVOID: ALSO MAY PRODUCE FUMES WHEN HEATED TO DECOMPOSITION, AS IN WELDING. FUMES MAY CONTAIN OXIDES OF METALS LISTED IN SECTION II.

INCOMPATIBILITY (MATERIALS TO AVOID): NONE RESONABLY FORSEEABLE.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: AVOID BREATHING SOLVENT VAPORS. ENSURE ADEQUATE VENTILATION. AVOID SPARKS, FLAMES AND ANYTHING WHICH COULD CAUSE FIRE.

WASTE DISPOSAL METHOD: SOAK LIQUIDS WITH SAWDUST OR RAGS AND REMOVE. FLUSH WITH WATER IF POSSIBLE. AVOID SKIN CONTACT AND DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII - SAFE HANDLING AND USE INFORMATION

RESPIRATORY PROTECTION: NIOSH/OSHA APPROVED RESPIRATOR TYPES SUITABLE FOR MATERIALS IN SECTION II RECOMMENDED. APPROVED CHEMICAL MECHANICAL FILTERS RECOMMENDED WHEN VENTILATION IS RESTRICTED.

VENTILATION: SUFFICIENT VENTILATION, IN VOLUME AND PATERN, SHOULD BE PROVIDED TO KEEP AIR CONTAMINATION BELOW CURRENT APPLICABLE OSHA PERMISSIBLE EXPOSURE LIMIT OR ACGHI'S TLV LIMIT LISTED IN SECTION II.

PROTECTIVE GLOVES: PROTECTIVE GLOVES RECOMMENDED.

EYE PROTECTION: CHEMICAL GOGGLES WITH SIDE SHIELDS OR FACE SHIELDS RECOMMENDED.

OTHER PROTECTIVE EQUIPMENT: PROTECTIVE CREAMS AND CLOTHING RECOMMENDED TO AVOID SKIN CONTACT.

HYGIENIC PRACTICES: WASH HANDS BEFORE EATING, SMOKING OR USING THE RESTROOM, SMOKE IN DESIGNATED AREAS ONLY.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: STORE MATERIAL IN A COOL DRY AREA WITH VENTILATION SUITABLE FOR STORING MATERIALS SHOWN IN SECTION II.

OTHER PRECAUTIONS: PROVIDE RESPIRATORY PROTECTION AGAINST SMOKE AND FUMES GENERATED DURING BURNING OR DUSTS GENERATED DURING REMOVAL OF DRY COATINGS.

29 CFR PARTS 1915,1916, AND 1917 REQUIRE THE PREPARATION OF THIS MATERIAL SAFETY DATA SHEET.

WAGE AND LABOR STANDARDS ADMINISTRATION
Bureau of Labor Standards

MATERIAL SAFETY DATA SHEET

SECTION I

MANUFACTURER'S NAME: USS Chemicals Division, U. S. Steel Corporation	EMERGENCY TELEPHONE NO.: (412) 233-5040
ADDRESS (Number, Street, City, State, and ZIP Code): 600 Grant Street, Pittsburgh, Pa. 15230	
CHEMICAL NAME AND SYNONYMS: Xylene, Xylol, Dimethyl Benzenes	TRADE NAME AND SYNONYMS: Xylene, Xylol
CHEMICAL FAMILY: Aromatic Hydrocarbons	FORMULA: C_8H_{10}

SECTION II HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS	NOT APPLICABLE		BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
NOT APPLICABLE		

SECTION III PHYSICAL DATA

BOILING POINT (Specify) Range (°F.)	278-293	SPECIFIC GRAVITY (H_2O=1) 60°F./60°F.	0.868-0.870
VAPOR PRESSURE (mm Hg.) 70°F. Maximum	Less Than 10mm	PERCENT VOLATILE BY VOLUME (%)	99.99%
VAPOR DENSITY (AIR=1)	About 3.66	EVAPORATION RATE (Butyl Acetate = 1)	Less Than 1
SOLUBILITY IN WATER	Neg.		
APPEARANCE AND ODOR	Water-White Liquid		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) 81-82°F. Tag Closed Cup	FLAMMABLE LIMITS	Lel	Uel
	About	1.0	6.0

EXTINGUISHING MEDIA
Foam, Carbon Dioxide and Dry Chemical

SPECIAL FIRE FIGHTING PROCEDURES
Water spray can be used to control unconfined fires, but a straight hose stream should not be used. Fireman should have self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS

SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
100 ppm. and 435 mg/M^3 as per Federal Register Vol. 36 #105

EFFECTS OF OVEREXPOSURE
Anesthetic action, headache, and tingling sensation

EMERGENCY AND FIRST AID PROCEDURES
Remove to fresh air. Recline victim and keep warm if breathing difficult. respiration if not breathing. Oxygen can be administered by qualified autho person if victim is unconscious. Remove contaminated clothing. If skin or tacted: wash with large amounts of clear water.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	Avoid oxidizing agents

INCOMPATABILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS
On oxidation: carbon monoxide, carbon dioxide, organic acids

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Large amounts - flush with water but prevent passage to drains and sewer.

Small amounts - mix with sand and burn.

WASTE DISPOSAL METHOD
Large amounts - atomize into an approved combustion chamber.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*
Self-contained breathing apparatus for severe exposure

VENTILATION	LOCAL EXHAUST Preferred	SPECIAL
	MECHANICAL *(General)*	OTHER

PROTECTIVE GLOVES Rubber gloves	EYE PROTECTION Safety goggles

OTHER PROTECTIVE EQUIPMENT
Not a serious industrial hazard - normal care

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Combustible. Vapors form explosive mixtures. Keep away from sparks and fl smoking. Keep container closed.

OTHER PRECAUTIONS
Ground storage and transport piping

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7. Date of Delivery 10/9/89	

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P 938 762 704

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PS Form 3800, June 1985