



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

file copy

MATERIAL LICENSE

BLACK & DECKER (U.S.) INC.
6 Armstrong Road
Shelton, Connecticut 06484-4797

License No. 06-20704-02E
Docket No. 030-21087
Amendment No. 03

In accordance with letter dated October 21, 1992, License No. 06-20704-02E is hereby terminated.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

DATE: NOV 19 1992

Original signed by:

BY:

Patricia C. Vacca
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS
Washington, D.C. 20555

11/16/92 CB
8/11/18/92
11/18/92

080065

9302120216 921119
PDR ADOCK 03021087
C PDR

ML00
copy to Reg I

NOV 19 1992

Black & Decker (U.S.) Inc
ATTN: Mr. Lee Crawford
Manager, Safety Assurance
6 Armstrong Road
Shelton, Connecticut 06484-4797

Dear Mr. Crawford:

Enclosed is Amendment No. 03 terminating License No. 06-20704-02E.

Please review the enclosed document carefully and if there are any errors or questions, please contact me so that the appropriate corrections or answers can be provided.

10 CFR 32.29(c)(2)(iii) requires that licensees file a product transfer report when notifying the Commission of the licensee's decision to discontinue or terminate authorized activities pursuant to the license issued under Section 32.26, 10 CFR Part 32. Our records show that the last product transfer report on file for Black & Decker was submitted in June 1991. Unless you have information to the contrary, please submit product transfer information from the date of your last report to the date of your termination request.

If you have any questions, please feel free to contact me at (301) 504-2686.

DISTRIBUTION:

License File

NMSS r/f
IMNS Central File
IMAB r/f
JGlenn
SGreene
MLamastra
Region I
State Programs

Sincerely,

Original signed by:

Susan L. Greene
Commercial Section
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

Enclosure:
Amendment No. 03

OFC	:IMAB:NMSS :						
NAME	:SGreene:cb:						
DATE	:11/18/92 :						

OFFICIAL RECORD COPY
G:B&DCVR.CB

11/19



BLACK & DECKER

U.S. Household Products Group

October 21, 1992

Ms. Susan L. Greene
Mailstop 6H3
Office of Nuclear Materials,
Safety, and Safeguards
U.S.N.R.C.
Washington, DC 20555

Subjec License No. 06-20704-02E

Dear Susan:

Per our telecon, this is a request to terminate the above license. We now distribute only smoke detectors manufactured and initially distributed to Black & Decker by Seatt, Inc. under their license number 12-15537-02E. Accordingly, we understand that we do not need a license as we have asked Seatt, Inc. to reference the Black & Decker series of smoke detectors on Seatt's license.

Thank you again for your assistance in this matter.

Sincerely,

Lee Crawford
Manager, Safety Assurance

/cp:0114LC

cc: John Kocis, Seatt Inc.
2820 Thatcher Road
Downers Grove, IL 60515

021464

R1201021

Licensing Tracking System

DATE: 921123
PAGE: 1

PAGE : 1

LTS WORKSHEET

DOCKET NO : 03021087 LICENSE NO : 06-20704-02E STATUS: 2
MAIL CONTROL: 021464 RECEIPT DATE : 921023 ACTION TYPE: 5
DUE DATE : 930121
FED. GOVT : N INST. CODE : 20704 LICENSE REGION: 0
ISSUE DATE: 921119
641031 ORIGINAL DATE: 841031 EXPIRATION DATE: 19891031
NAME : BLACK & DECKER (U.S.) INC. DECOM FIN ASSUR REQD: N
SUBM:
DEPT/BUREAU: HOUSEWARES GROUP CONT PLAN REQD: APPRV
BUILDING :
STREET : 6 ARMSTRONG ROAD
CITY : SHELTON STATE: CT ZIP: 064844797
CONTACT PERSON: MARY LOU MEIGS PHONE: 203-926-317
Lee Crawford
PRIMARY PGM CODE : 03255 SECONDARY PGM CODES:
INSPECTION REGION: 1 PRIORITY CODE: 5 INSPECTION CATEGORY: E
RADIATION SAFETY OFFICER: Mary Lou Meigs
STATES WHERE USE IS AUTHORIZED: 1 0 - ALL LISTED STATES
1 - SAME AS STATE IN ADDRESS
2 - ALL STATES
3 - NON-AGREEMENT STATES
AUTHORIZED STATES: (USE ONLY IF ABOVE IS ZERO)
REPORTING IDENTIFICATION SYMBOL:
APPROVAL FOR: REDISTRIBUTION: N STORAGE ONLY: N
TEMPORARY JOB SITES: N INCINERATION: N
BURIAL: N
EXEMPTIONS: (1) (2)

POSSESSION LIMIT INFORMATION

PAGE: 2

MATERIAL TYPE	NPA	FORM CODE: NPA	AGGREGATE CODE: NPA
MODEL NUMBER	_____	_____	_____
DESCRIPTION	_____	UNIT: _____	_____
TOTAL QUANTITY	0000000.000000000	# SOURCES: _____	_____
OTHER	_____	_____	_____
MATERIAL TYPE	_____	FORM CODE: _____	AGGREGATE CODE: _____
MODEL NUMBER	_____	_____	_____
DESCRIPTION	_____	UNIT: _____	_____
TOTAL QUANTITY	_____	# SOURCES: _____	_____
OTHER	_____	_____	_____
MATERIAL TYPE	_____	FORM CODE: _____	AGGREGATE CODE: _____
MODEL NUMBER	_____	_____	_____
DESCRIPTION	_____	UNIT: _____	_____
TOTAL QUANTITY	_____	# SOURCES: _____	_____
OTHER	_____	_____	_____
MATERIAL TYPE	_____	FORM CODE: _____	AGGREGATE CODE: _____
MODEL NUMBER	_____	_____	_____
DESCRIPTION	_____	UNIT: _____	_____
TOTAL QUANTITY	_____	# SOURCES: _____	_____
OTHER	_____	_____	_____
MATERIAL TYPE	_____	FORM CODE: _____	AGGREGATE CODE: _____
MODEL NUMBER	_____	_____	_____
DESCRIPTION	_____	UNIT: _____	_____
TOTAL QUANTITY	_____	# SOURCES: _____	_____
OTHER	_____	_____	_____
MATERIAL TYPE	_____	FORM CODE: _____	AGGREGATE CODE: _____
MODEL NUMBER	_____	_____	_____
DESCRIPTION	_____	UNIT: _____	_____
TOTAL QUANTITY	_____	# SOURCES: _____	_____
OTHER	_____	_____	_____

..... LICENSE DATA, CONTINUED PAGE: 5

DOCKET NO: 03021087 LICENSE NUMBER: 06-20704-02E

NAME : BLACK & DECKER (U.S.) INC

MEDICAL QUALITY MANAGEMENT PROGRAM REQUIRED: N RECEIVED: APPROVED:

DECOMMISSIONING FINANCIAL ASSURANCE REQUIRED: N SUBMITTED:

CONTINGENCY PLAN REQUIRED: APPROVED:

DECAY-IN-STORAGE APPROVED: N HOLDING FOR < 10 HALF-LIVES APPROVED:

T 1/2 > 65 DAYS, ISOTOPE(S):

INTERIM STORAGE UP TO 1998: N

.....

NRC HEADQUARTERS

MATERIAL LICENSE TERMINATION/RETIREMENT FORM

(To be completed only by Headquarters Section Leader or person authorized to sign licenses)

LICENSEE NAME Black+Decker (U.S.) Inc. LICENSE NO. 06-20704-02E
 ADDRESS 6 Armstrong Rd. DOCKET NO. 030-21087
Shelton, CT 06484-4797 EXPIRATION DATE 10-31-89

LICENSE IS EXPIRED _____

BEING TERMINATED ☒ _____

Basis for termination/retirement:

1. Superseded by License No. _____

Transfer documents to new license folder. Date Transferred _____

2. Other Letter from licensee, dated 10/21/92,
requesting termination of license.

DATE 11/23/92

Authorized Signature

BY Michael A. Lamastra 11/23/92
 NMSS/IMNS/IMAB

ACTION BY IRM:
 Retire old license.

ACTION BY IMOB:
 Change status in computer.
 Status changed to 04 on 11-24-92
 by M. Moriarty

DISTRIBUTION:
 IRM - Retired Folder
 OC/LFDCB
 Region Licensing Section

VOID SHEET

man. 1 HQS
3H
110283

TO: License Fee Management Branch
FROM: Michael A. Lamastra
SUBJECT: VOIDED APPLICATION

Control Number: 110283
Applicant: Black & Decker (U.S.) Inc.
Date Voided: 11.19.92
Reason for Void: Per licensee's
request, letter dated 10/21/92.

Michael A. Lamastra
Signature
NMSS/IMNS/IMAB

11/23/92
Date

Attachment:
Official Record Copy of
Voided Action

FOR LFMB USE ONLY

Final Review of VOID Completed:

- ☐ Refund Authorized and processed
☒ No Refund Due
☐ Fee Exempt or Fee Not Required

Comments: after review

Log completed ☒

Processed by: AK



BLACK & DECKER

U.S. Household Products Group

January 29, 1992

Ms. Susan Greene
Mail Stop 6H3
Medical Academic & Commercial Use Safety Branch
USNRC
Washington, DC 20555

Dear Susan:

Per our telecon, please do not add Seatt Smoke Detector models to our existing license. We wish to renew our license for distribution of our present stock.

If you have any questions, please call.

Sincerely yours,

Lee Crawford
Manager - Safety Assurance

LC/0042LC



U.S. Household Products Group

July 10, 1991

Ms. Susan L. Greene
Office of Nuclear Materials,
Safety, and Safeguards
U.S.N.R.C.
Washington, D.C. 20555

SUBJECT: License No. 06-20704-02E for Black & Decker Smoke Detectors

YOUR REFERENCE: Mail Control No. 110283

Dear Ms. Greene:

This is in response to your June 18 letter regarding renewal of the subject license.

Since our original request for renewal in February of 1989 much has changed which will considerably simplify our license.

First, and most importantly, Black & Decker is no longer in production of any of the smoke detectors covered by our original license or any of those which we had requested be added. Our only activity with the detectors in question is limited to selling out our current stock which consists of only 53,000 model SMK25, 1400 SMK30, and 230 SMK6D. Since production has been halted for over a year now, much of the information you request is unfortunately no longer available (and hopefully no longer necessary). I will, however, provide you with whatever we do have available so that our records may be updated as much as possible.

Your letter notes that your current registration sheet for our license identifies GE as the manufacturer/distributor. A request was made to amend the license to change the manufacturer/distributor to Black & Decker back in 1984 when Black & Decker purchased General Electric Housewares Division. Our copy of the license shows that this amendment was made as Black & Decker is listed as the Licensee.

With regard to the information you require per 10CFR para. 32.26, since we are no longer in production of the units in question records related to the design, manufacture, handling and quality control of the units are no longer available. This information, however, would have remained unchanged with this renewal as all models were manufactured in the same location under the same conditions as covered by the original license. We were therefore unaware that we would need to resubmit this material upon renewal.

With regard to the model differences, the model SMK6D is our oldest model and remains unchanged. The /M1, /M2, and /M3 designations attached to this model were simply a rather confusing method of identifying the integrated circuit chip employed inside the unit. These designations are now obsolete. The SMK25 is an SMK6D with a different housing. The SMK30 is an SMK25 provided with a different battery.

As stated in my original request for renewal, the sealed source employed in all of these models was manufactured by Nuclear Radiation Development, Inc. - Grand Island, NY. The nuclear material is Americium 241 in the amount of 0.9 micro Curie.

As the SMK6D has remained unchanged constructionally, information already contained in your file with regard to exposure rates are still applicable. The external radiation levels for the SMK25 were measured by an independent lab and are included with this letter for your records. Engineering drawings are no longer available for this obsolete model.

Per your request, I have enclosed an updated copy of our Domestic Shipment Report with this letter.

While I hope I have been able to provide sufficient information to update our records I question the necessity of renewing our license for these models at this time as we have no plans for future production of these smoke detectors. We would appreciate your recommendation with regard to this matter.

On another issue, the enclosed letter dated April 11, 1991 requests addition of four new models to our license. All of these models are manufactured by Seatt Corp. and have been distributed under their license for the past year and a half. We have now been informed by our local NRC office in King-of-Prussia, PA that we will need to add these models to our license. We would appreciate it very much if you would look into the disposition of this letter and let me know when this addition can be made.

Thanks very much for your assistance. If you require anything further, please do not hesitate to call. I may be reached at (203)926-3116.

Very truly yours,

Mary Lou Meigs
Mary Lou Meigs
Senior Coordinator of
Engineering Standards

SHIPMENT HISTORY REPORT -- SPECIALTY

YTD ACTUAL: MAY 91

** YTD ROLLING 12, ROLLING 12 VX, ROLLING 6 VX, ROLLING 3 VX

	JAN	FEB	MAR	1ST QTR	APR	MAY	JUN	2ND QTR	YTD	JUL	AUG	SEP	3RD QTR	YTD	OCT	NOV	DEC	4TH QTR	FULL YEAR
HEATERS																			
HF200U				0.0			0.2	0.2	0.2	3.9	4.4	2.0	10.3	10.5	5.4	4.2	0.4	10.0	20.5
1986				0.3	0.1	-1.3	1.0	-0.2	0.1	3.9	1.6	10.0	15.5	15.6	1.2	1.3	0.7	3.2	18.8
1987	0.6	-0.4	0.1	0.3	-0.1	-1.3	1.0	-0.2	0.1	3.9	1.6	10.0	15.5	15.6	1.2	1.3	0.7	3.2	18.8
1988	0.8	2.3	-0.3	2.8	-3.1	0.1	0.6	-2.4	0.4	0.6	1.0	1.2	2.8	3.2	2.5	1.2	1.8	5.5	8.7
1989	1.6	0.8	0.3	2.7	-0.3	0.0	0.2	-0.1	2.6	0.6	0.4	1.4	2.4	5.0	1.5	1.1	0.6	3.2	8.2
**	N/A	N/A	N/A	N/A															
HF230U/G				0.0				0.0	0.0	0.0	8.0	9.9	17.9	17.9	1.4	3.2	2.7	7.3	25.2
1986				6.7	-0.2	0.4	1.5	1.7	8.4	3.4	12.6	7.8	23.8	32.2	3.9	7.1	2.4	13.4	45.6
1987	5.2	2.0	-0.5	1.1	-1.4	-0.1	-2.1	-3.6	-2.5	1.0	13.2	7.1	21.3	18.8	22.4	4.5	7.6	34.5	53.3
1988	1.4	0.0	-0.3	3.0	-1.5	-0.4	0.4	-1.5	1.5	1.3	3.2	9.8	14.3	15.8	24.8	10.4	0.6	35.8	51.6
1989	3.0	0.0	0.0	-4.0	-0.2	0.1	0.3	0.2	-3.8	3.8	10.4	5.1	19.3	15.5	4.5	9.6	4.5	18.6	34.1
1990	0.0	-0.6	-3.4	3.2	0.1	1.4													
1991	2.3	0.8	0.1	3.2	0.1	1.4													
**	42.9	-7.5%	-362.9%	-145.7%															
TOTAL HEATERS				0.0	0.0	0.0	0.2	0.2	0.2	3.9	12.4	11.9	28.2	28.4	6.8	7.4	3.1	17.3	45.7
1986	0.0	0.0	0.0	7.0	-0.1	-0.9	2.5	1.5	8.5	7.3	14.2	17.8	39.3	47.8	5.1	8.4	3.1	16.6	64.4
1987	5.8	1.6	-0.4	3.9	-4.5	0.0	-1.5	-6.0	-2.1	1.6	14.2	8.5	24.1	22.0	24.9	5.7	9.4	40.0	62.0
1988	2.2	2.3	-0.6	5.7	-1.8	-0.4	0.6	-1.6	4.1	1.9	3.6	11.2	16.7	20.8	26.3	11.5	1.2	39.0	59.8
1989	4.6	0.8	0.3	-4.0	-0.2	0.1	0.3	0.2	-3.8	3.8	10.4	5.1	19.3	15.5	4.5	9.6	4.5	18.6	34.1
1990	0.0	-0.6	-3.4	3.2	0.1	1.4													
1991	2.3	0.8	0.1	3.2	0.1	1.4													
**	42.9	-17.8%	-417.2%	-145.7%															
FIRE SAFETY																			
SMK6/D				0.0	0.0	0.0	16.6	16.6	16.6	35.1	36.0	31.1	102.2	118.8	26.8	32.9	67.6	127.3	246.1
1983	0.0	0.6	0.0	102.3	22.4	21.3	84.3	128.0	230.3	40.8	43.0	64.1	147.9	378.2	123.3	98.1	172.1	393.5	771.7
1984	29.2	37.4	35.7	225.4	33.0	38.9	70.3	142.2	367.6	111.4	67.0	118.4	296.8	664.4	40.1	51.4	44.8	136.3	800.7
1985	62.1	95.0	70.3	169.8	37.0	20.2	47.1	104.3	274.1	58.2	58.3	90.4	206.9	481.0	70.1	34.1	60.1	164.3	645.3
1986	33.1	59.7	77.0	130.2	39.6	26.9	36.3	102.8	233.0	36.1	66.8	35.6	138.5	371.5	70.7	47.7	32.8	151.2	522.7
1987	33.9	50.5	45.8	132.3	24.5	43.7	67.8	136.0	268.3	38.7	54.5	85.9	179.1	447.4	74.7	60.9	40.6	176.2	623.6
1988	30.1	38.4	63.8	90.6	18.0	41.4	40.4	99.8	190.4	34.6	28.0	29.9	92.5	282.9	44.0	41.9	29.3	115.2	398.1
1989	39.5	18.2	32.9	30.7	10.6	5.4	8.1	24.1	54.8	2.5	5.7	9.0	17.2	72.0	7.5	14.6	8.7	30.8	102.8
1990	7.8	8.2	14.7	59.3	0.0	-0.4													
1991	3.0	31.6	24.7	20.8%															
**	115.0	-61.0%	-11.1%	-20.8%															
* SMK6DM				0.0	1.5	10.6	16.1	28.2	28.2	2.0	15.9	22.0	39.9	68.1	0.0	0.0	0.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	18.9	9.5	15.6	44.0	44.0	9.5	8.5	6.0	24.0	68.0	12.6	13.4	15.6	41.6	109.6
1989	0.0	0.0	0.0	11.1	1.0	12.5	17.5	31.0	42.1	39.0	25.0	22.4	86.4	128.5	-1.0	1.0	0.0	0.0	128.5
1990	4.6	4.5	2.0	N/A															
**	N/A	N/A	N/A	N/A															
SMK9				81.2	0.0	0.0	0.0	0.0	81.2	151.3	1.5	43.8	196.6	277.8	40.6	0.4	0.0	41.0	318.8
1983	15.3	20.1	45.8	69.3	0.1	1.1	0.3	1.5	70.8	0.1	1.7	0.2	2.0	72.8	0.5	0.4	0.3	1.2	74.0
1989	19.1	15.1	35.1	2.1	1.1	0.7	0.5	2.3	4.4	1.1	0.0	0.0	1.1	5.5	0.0	0.0	0.0	0.0	5.5
1990	0.4	0.6	1.1	N/A															
**	N/A	N/A	N/A	N/A															

* Same as SMK6D except for
Cosmetic picture on box

SHIPMENT HISTORY REPORT -- SPECIALTY

YTD ACTUAL: MAY 91 ** YTD ROLLING 12, ROLLING 12 V%, ROLLING 6 V%, ROLLING 3 V%

	JAN	FEB	MAR	1ST QTR	APR	MAY	JUN	2ND QTR	YTD	JUL	AUG	SEP	3RD QTR	YTD	OCT	NOV	DEC	4TH QTR	FULL YEAR
SMK12/1987	0.0	0.0	2.4	2.4	0.0	0.0	0.0	0.0	2.4	0.0	1.1	1.7	2.8	5.2	0.0	0.0	0.0	0.0	0.0
1988	0.2	0.5	0.9	1.6	0.4	0.3	0.9	1.6	3.2	0.3	2.0	4.8	7.1	10.3	0.2	1.2	0.4	1.8	7.0
1989	0.4	0.7	0.7	1.8	0.5	0.7	1.2	2.4	4.2	0.6	2.9	1.9	5.4	9.6	0.9	3.8	3.8	6.5	18.8
1990	0.3	0.0	0.3	0.6	0.1	0.1	0.2	0.4	1.0	0.4	0.2	0.0	0.6	1.6	0.0	2.5	1.8	6.9	16.5
**	N/A	N/A	N/A	N/A														0.0	1.6
SMK18/1989	2.2	1.4	2.7	6.3	0.2	0.0	0.4	0.6	6.9	0.0	1.5	2.6	4.1	11.0	0.0	0.0	4.0	4.0	4.0
1990	2.6	0.4	1.1	4.1	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0	4.1	0.0	0.0	3.7	3.7	14.7
**	N/A	N/A	N/A	N/A														0.0	4.1
SMK20/1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.4	1.6	1.6	0.0	0.0	0.0	0.0	0.0
1988	0.0	0.1	12.8	12.9	0.0	0.6	0.0	0.6	13.5	0.0	0.0	0.0	0.0	13.5	0.3	0.5	0.1	0.9	2.5
**	N/A	N/A	N/A	N/A														0.0	13.5
SMK25/1988	0.8	2.5	7.1	10.4	2.4	3.1	12.6	18.1	28.5	15.4	27.2	20.9	63.5	92.0	0.0	0.0	0.0	0.0	0.0
1989	14.9	7.0	12.9	34.8	16.6	4.0	4.3	24.9	59.7	5.4	5.8	4.4	15.6	75.3	5.2	9.8	8.3	23.3	115.3
1990	2.7	1.8	2.9	7.4	0.6	1.6	2.5	4.7	12.1	2.1	3.3	2.0	8.3	20.4	5.3	7.4	5.5	18.2	93.5
1991	0.5	2.3	2.4	5.2	1.7	0.2									2.4	18.0	2.8	23.2	43.6
**	41.1	-13.8%	-34.4%	-15.7%															
SMK30/1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	27.6	30.4	30.4	0.0	0.0	0.0	0.0	0.0
1988	5.6	0.6	12.4	18.6	-1.2	0.0	1.9	0.7	19.3	0.3	-0.3	0.0	0.0	19.3	4.1	8.2	6.6	18.9	49.3
1989	-3.0	-0.4	0.0	-3.4	6.2	0.6	24.1	30.9	27.5	1.0	5.6	0.7	7.3	34.8	0.1	-0.9	0.0	-0.8	18.5
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	-0.1	34.7
**	N/A	N/A	N/A	N/A														0.0	0.0
SMK100/1989	4.2	12.6	7.6	24.4	0.5	7.5	7.1	15.1	39.5	5.9	43.0	29.2	78.1	117.6	29.5	15.1	25.5	25.5	25.5
1990	14.8	9.0	19.3	42.8	21.6	6.3											25.2	69.8	187.4
**	225.7	289.8%	65.6%	200.6%															
SMK200/1990	0.0	0.0	1.1	1.1	0.1	0.1	2.7	2.9	4.0	0.6	0.4	5.6	6.6	10.6	0.8	0.3	0.7	1.8	12.4
1991	0.9	0.9	1.3	3.1	3.6	0.2													
**	18.0	1254.6%	484.6%	292.3%															
SMK300/1989	3.2	1.3	0.8	5.3	0.1	0.6	0.9	1.6	6.9	0.4	0.4	19.4	19.4	19.4	79.5	48.8	19.8	148.1	167.5
1990	0.2	0.5	0.2	0.9	0.3	0.4						0.6	1.4	8.3	0.5	0.3	1.8	2.8	10.9
1991	6.5	-96.3%	-86.8%	-40.0%															
**																			
SMK400/1990	0.0	0.7	3.9	4.6	0.3	0.5	3.7	4.5	9.1	1.1	2.6	8.8	12.5	21.6	4.0	2.0	0.3	6.3	27.9
1991	0.1	-0.2	0.2	0.1	-0.1	-1.4													
**	21.1	290.7%	120.4%	-127.7%															

* Not covered by this license. These are manufactured by
Seatt Corp. and distributed under their license 12-1553702E.

JUN 18 1991

Black & Decker (U.S.), Inc.
ATTN: Ms. Mary Lou Meigs
6 Armstrong Road
Shelton, CT 06484-4797

Dear Ms. Meigs:

This refers to your letter of February 14, 1989, requesting renewal of License No. 06-20704-02E and your letter of April 11, 1991, requesting the addition of 4 new smoke detector models.

It was noted during our preliminary review of your request that your license file has become disjointed and confusing, and contains significant information concerning obsolete smoke detector models. We also noted that the current registration sheet for your product identifies General Electric Company as the manufacturer/distributor. In order to complete our review of your request, create a more concise and up-to-date license file, and issue a correct registration sheet, we find that a complete application concerning your current distribution activities must be submitted for review.

Please review your distribution program and previous applications and submit a complete application concerning the smoke detection devices and model numbers that pertain to your present distribution activities. The information to be submitted is outlined in 10 CFR 32.26 and 32.27. This application will supersede all previously submitted information, which will be deleted; however, please note that it is appropriate to resubmit previously submitted information as long as it pertains to your current distribution activities.

Also, 10 CFR 32.29(c)(1) requires that product transfer reports be submitted at the time of renewals. Your letter of January 22, 1990, Item 4, referenced an enclosed copy of your Domestic Shipment History report that we are unable to locate in your license file. Please provide a copy of this product transfer report with your resubmitted application.

As part of its initial review, the Sealed Source Safety Section has identified several items that you should insure are addressed in order for them to complete their device review and issue a new device registration sheet to Black & Decker. Any questions regarding the device review or the following items should be directed to Mr. Sterling Bell at (301) 492-0617.

1. General Electric's registration #NR-311-D-101-E lists four suppliers of sealed sources while your request only lists one supplier. Do you intend to drop the other approved suppliers? You should submit the model numbers of the sources you intend to use.
2. Provide the isodose curves and engineering drawings for each of the ion chambers or designs you intend to use.

Ms. Mary Lou Meigs

- 2 -

3. Of the "current" model numbers to be used that are listed in your February 14, 1989, letter, which ones will use hyphens and/or contain a "D" in the model number per your letter of March 12, 1985? Please verify all current model numbers and series that you intend to use and delete all material dealing with old and obsolete models. Also, model SMK 9 is not listed as a tested model by NRPB in your October 24, 1988, letter.
4. Detector Model SMK6D is listed as a "current" model; however in material attached to your applications, you state that SMK6D/M1 is "a limited production run of an old design" (see P.1 of file S1665 Vol. 1, Sec. 7, dated July 26, 1989). Please clarify.
5. Is model SMK6D intended to be a series, i.e. M1, M2, M3, or are these the only three variations that are to be used? If this model is to be a series, it should be shown as the SMK6D Series.
6. Please submit drawings of all labels and labelling information.

Our review of your application will continue upon receipt of the above information. Please reply within 30 days, in duplicate, and reference Mail Control No. 110283. If you have any questions concerning your licensing request, you may contact me at (301) 492-0686.

Sincerely,

/s/
Susan L. Greene
Medical, Academic and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety,
Office of Nuclear Materials
Safety and Safeguards

Enclosure:
10 CFR Part 32

DISTRIBUTION *w/o enclosure*
License File
IMAB r/f
MLamastra

INMS Central File
SGreene

NMSS r/f
JEGlenn

PRathbun
06/ /91

OFC: IMAB :IMAB *PC*

NAME: SLGreene:sg :JBCarrico

DATE: 06/14/91 :06/17/91

OFFICIAL RECORD COPY

BLACK & DECKER

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 10 1991

MEMORANDUM FOR: Mike Lamastra, Section Leader
Commercial Section
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety

Steven L. Baggett, Section Leader
Sealed Source Safety Section
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety

DEVICE REVIEW FOR BLACK AND DECKER

has reviewed the Black & Decker (B&D) smoke detector device review
and has concluded that they should resubmit their request as a new
application.

of February 14, 1989, requests several amendments to licenses
Black & Decker smoke detectors; however, these licenses are based
sheet (NR-311-D-101-E) issued in the name of General Electric
new registry sheet should have been issued to B&D when Black &
used the Housewares Operation of General Electric Company and was
distribution license by John W.N. Hickey.

endor code must be assigned to B&D and since all of the model
on the old sheet are now obsolete, a new registration sheet
rather than trying to amend General Electric's device sheet.
of smoke detector model numbers listed in the current
ion for GE, E.I. Co. Ltd., and B&D.

should be addressed in any new submission:

Electric's registration # NR-311-D-101-E lists four
of sealed sources. B&D's request only lists one
and does not give a model number. Does B&D really want
the other approved suppliers? Also, they must submit a
number or numbers for the sources they do intend to use.
only use one type of design of ion Chamber in all
detectors or do they intend on using several different



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 10 1991

MEMORANDUM FOR: Mike Lamastra, Section Leader
Commercial Section
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety

FROM: Steven L. Baggett, Section Leader
Sealed Source Safety Section
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety

SUBJECT: DEVICE REVIEW FOR BLACK AND DECKER

My staff has reviewed the Black & Decker (B&D) smoke detector device review request and has concluded that they should resubmit their request as a new device review application.

Their letter of February 14, 1989, requests several amendments to licenses covering Black & Decker smoke detectors; however, these licensees are based upon an SSD sheet (NR-311-D-101-E) issued in the name of General Electric Company. A new registry sheet should have been issued to B&D when Black & Decker purchased the Housewares Operation of General Electric Company and was issued a new E-distribution license by John W.N. Hickey.

Since a new vendor code must be assigned to B&D and since all of the model numbers listed on the old sheet are now obsolete, a new registration sheet must be issued rather than trying to amend General Electric's device sheet. There are a plethora of smoke detector model numbers listed in the current and old documentation for GE, E.I. Co. Ltd., and B&D.

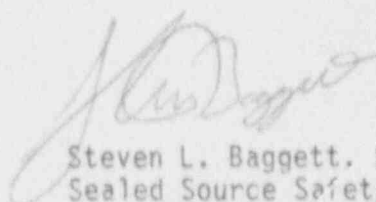
The following items should be addressed in any new submission:

1. General Electric's registration # NR-311-D-101-E lists four suppliers of sealed sources. B&D's request only lists one supplier and does not give a model number. Does B&D really want to drop the other approved suppliers? Also, they must submit a model number or numbers for the sources they do intend to use.
2. Will they only use one type of design of ion Chamber in all their detectors or do they intend on using several different ion chambers.

3. If they only will use one type of ion chamber, then they need show isodose curves and provide an engineering drawing of that one design regardless of the number of model numbers they utilize. However, if they will use more than one design then they must submit the above mentioned material for each design used.
4. Of the "current" model numbers to be used that are listed in their letter of February 14, 1989, which ones will use hyphens and/or contain a "D" in the model number per their letter of March 12, 1985? Also, model SMK 9 is not listed as a tested model by NRPB in their letter of October 24, 1988.
5. B&D shows detector SMK6D as a "current" model, however, in material attached to their applications they state that SMK6D/M1 is "a limited production run of and old design." (See P.1 of file S1665 Vol 1 Sec 7 dated 7/26/89).
6. Is model SMK6D intended to be a series, ie. M1, M2, M3, or are these really the only three variations intended? If that model is to be a series it should be shown as the SMK6D Series.
7. B&D did not submit any labelling information with their letters of February 14, 1989, and January 20, 1990. They should submit all new labels and labeling information.
8. With so many model numbers used in all the various correspondence that has been submitted, B&D should verify the model numbers and series they intend on using and delete all material dealing with old and obsolete models.

The key to their new device registration request is to completely detail their ionization chamber (s) with a basic model number(s) and then explain the electrical and/or cosmetic differences of all the other models. Also, if they intend to use words like "same as", "identical to" and "similar to" they need to define how they are using these terms.

The complete license file is enclosed for your review.



Steven L. Baggett, Section Leader
Sealed Source Safety Section
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and Medical
Nuclear Safety

Recd 10/2/82 Amroc
9/29/89

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

must be numbered and certified!

NO: NR-311-D-101-E

DATE:

OCT 15 1982

PAGE 1 OF 6

DEVICE TYPE: Smoke Detector

MODEL: 8201-401 C/M1, SMK-2, SMK-2M/1

MANUFACTURER/DISTRIBUTOR:

now Altech Distrib

General Electric Company
1285 Boston Avenue
Bridgeport, CN 06602

MANUFACTURER/DISTRIBUTOR:

SEALED SOURCE MODEL DESIGNATION:

Nuclear Radiation Developments Model A-001
Amersham Corporation Model AMM-1001
Radiochemical Centre Model AMM-1001 or
EAD Metallurgical Model AMX 1100

ISOTOPE: Americium-241

MAXIMUM ACTIVITY: 0.9 microcuries (8201-401 C/M1
SMK-2 M/1)
2 microcuries (SMK-2)

LEAK TEST FREQUENCY: Not required

PRINCIPAL USE: (P) Ion Chamber, Smoke Detector

CUSTOM DEVICE: ☐ YES ☒ NO

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO: NR-311-D-101-E

DATE: OCT 15 1982

PAGE 2 OF 6

DEVICE TYPE: Smoke Detector

DESCRIPTION:

The basic General Electric design smoke detector consists of an Americium-241 sealed (foil) source mounted in a stainless steel holder within an ionization chamber. The ion chamber is stake mounted to a fiberglass circuit board and is covered by an ion chamber cover. This cover may be either conductive polypropylene plastic or aluminum. The ion chamber cover is permanently attached to the circuit board by means of a tamper-proof screw and twist lock lugs. The circuit board and air vents on the top surface of the cover which allows passage of ambient air to the detector chamber. The ion chamber and circuit board are further contained within an outer plastic base and a snap-on plastic cover. The plastic base also contains a battery mount and alarm horn.

The Model 8201-401C/M1 Smoke Alarm is essentially the previously approved Model 8201-401C with a 0.9 uCi Americium-241 source rather than a 2 uCi source.

The Models SMK-2 and SMK-2/M1 are portable travel models of Models 8201-401C and 8201-401C/M1 Smoke Alarms. Portability is achieved by attaching a "L" shaped metal bracket to the top mounting screw of the respective portable units. The "L" bracket can be slid in and out of the bracket holder for storage during travel and for mounting on a room door when in use. An on/off jack is provided for each model unit which upon removal from the socket prevents the alarm from sounding while traveling. The figures below show (a) the mounting bracket with the short side inserted in the bracket holder and the on/off jack removed from the socket for traveling, (b) the smoke alarm with bracket inserted in the Travel Pouch, (c) removal of bracket for insertion of long "L" side in holder so that (d) the short side can be mounted over a door when the Smoke Alarm is in use.

LABELING:

Each Smoke Alarm and Point-of-Sale Package is labeled in accordance with the requirements of 32.29, 10 CFR 32 as demonstrated by the manufacturer by the sample alarm and package supplied in support of the license amendment.

DIAGRAM:

See attachment.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO: NR-311-D-101-E

DATE: OCT 15 1982

PAGE 3 OF 6

DEVICE TYPE: Smoke Detector

CONDITIONS OF NORMAL USE:

For use as residential smoke detectors (alarms) as described in General Electric Company License No. 06-15796-04.

PROTOTYPE TESTING:

The manufacturer states that consideration was given to the other prototype tests of fire, immersion and vibration of the Model 8201-401C/M1 Smoke Alarm, and since neither source type, material, holder or plastic ion chamber cover material have been changed, prototype testing reported in previous General Electric license applications are applicable to the Model 8201-401C/M1 (Travel Version: Model No. SMK-2M1). However, this unit was dropped from a height of eight feet onto a concrete floor 100 times. The source, outside the ion chamber, inside the ion chamber and the source back were wiped before (pre-drop) and at the conclusion of the test (post-drop). All wipes were counted in a gas flow proportional counter with a lower limit of detection of 0.6 pCi.

The results of the tests were that the cover of the unit came off after the second drop. The base was then dropped 98 times. The horn broke off after 36 drops. The rest of the unit remained intact except for some breaking off of plastic parts. The PC board remained firmly attached to the base, and the ion chamber firmly attached to the PC board.

After the drop test the ion chamber was deliberately pried off the base to expose the source. There was no visible damage to the source or source mount. The outside of the ion chamber, source and mount, inside the ion chamber and the back of the source and source mount were wiped. There was no apparent loss of source containment or integrity as a result of the drop test. The results of test for removable activity were:

Outside of ion chamber (pre-drop)	0.6 pCi (lower limit of detection)
Outside of ion chamber (post-drop) ...	0.8 pCi
Inside of ion chamber (post-drop)	0.6 pCi
Source and Source Mount	2.5 pCi
Bases of Source and Source Mount	0.9 pCi
(post-drop)	

For the Model 8201-401C (Travel Version: Model SMK-2), a 100 time drop test was performed as described above, with the exception that all wipe tests were performed on a gas glow proportional counter with a lower limit of detection of 0.4 pCi. General Electric states that the results of the test were: The cover of the unit came off after the first drop. The base was then dropped 99 times. The horn broke

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO: NR-311-D-101-E

DATE:

OCT 15 1982

PAGE 4 OF 6

DEVICE TYPE: Smoke Detector

PROTOTYPE TESTING (Cont'd):

off after 55 drops. The rest of the unit remained intact. The PC board was loosened; however, the ion chamber remained firmly attached to the PC board. After the drop test the ion chamber was deliberately pried off the base to expose the source. The inside of the ion chamber was wiped and the wipes counted. All wipes, i.e., outside ion chamber (pre-drop), inside of ion chamber (post-drop), and source and source mount (pre-drop), indicated less than 0.4 pCi removable contamination which was the lower limit of detection of the gas flow proportional counter system. There was no viable impairment of source integrity or containment. Additionally, to simulate a test in a home fire one source in its plastic mount (as used in the Model B201-401C/Model SMK-2) was heated in a double ceramic vessel in a muffle furnace for one hour at 1200°C. The oven had been preheated before insertion of the source. After cooling the source mass was washed with distilled water and the inside of the vessel was rinsed three times with concentrated HNO₃. The total rinse was evaporated to dryness and counted for 40 minutes in a gas-flow proportional alpha counter. The lower limit of detection of the counter is less than one pCi for a 40 minute count. The total activity lost in the fire test was 177 pCi or 0.035 percent of the source activity. This is less than the activity lost in previous tests of the same source in different mountings.

EXTERNAL RADIATION LEVELS:

External radiation levels on the smoke alarms were measured using a Ge(Li) detector with a multi-channel analyzer system by comparing count rate to a 0.00795 uCi Americium-241 standard. From this, a conversion factor, the ratio of calculated exposure rate to count rate summed over eleven channels (uR/hr/c/m) was determined.

Maximum readings observed were:

Model	Exposure Rate (uR/hr)		
	Surface	5 cm	25 cm
B201-401C/M1 (SMK-2M/1)	4.28	0.85	0.113
B201-401C (SMK-2)	12.00	2.04	0.17

General Electric has estimated the annual external gamma dose to frequent travelers using travel smoke alarms. These estimates were made using the following assumptions:

- A. Traveler is maximally exposed individual.
- B. Frequent travelers: One who makes one trip per week, carrying the Smoke Alarm either in "carry-on" luggage on an aircraft or in a suitcase in the front seat of the vehicle.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO: NR-311-D-101-E

DATE: OCT 15 1982

PAGE 5 OF 6

DEVICE TYPE: Smoke Detector

EXTERNAL RADIATION LEVELS (Cont'd):

- C. Normal use: Assumes one meter distance from the Smoke Alarm eight hours per day, 365 days per year.
- D. Dose in transit: Assumes the Smoke Alarm is located 50 cm from the individual 20 hours travel time per week. (This includes time spent carrying luggage and that the container is such that it provides minimal shielding.)
- E. Dose to hands from packing, mounting and dismounting unit: Assumes 30 minutes of direct handling time is required per trip for packing, mounting, dismounting, etc.

The estimated annual external gamma doses to be frequent traveler are:

<u>Dose</u>	<u>Model Numbers</u>	
	<u>SMK-2</u>	<u>SM-2/M1</u>
Whole Body Dose:		
Normal Use	0.05 mRem/y	0.02 mRem/y
Transit	0.07 mRem/y	0.03 mRem/y
Total	0.12 mRem/y	0.05 mRem/y
Dose to Hands:	0.3 mRem/y	0.1 mRem/y

QUALITY ASSURANCE AND CONTROL:

Refer to General Electric Material License Nos. 05-15796-04 and 06-15796-3E.

LIMITATIONS AND/OR OTHER CONSIDERATIONS OF USE:

- A. These devices are designed, manufactured and tested for use as residential or portable (travel) smoke detectors and are intended for exempt distribution pursuant to 30.20, 10 CFR 30.
- B. The General Electric Company states that these devices have been designed, manufactured, and tested to meet the requirements of 32.26, 32.27, 32.28, and 32.29 of 10 CFR 32.

REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF DEVICE

NO: NR-311-D-101-E

DATE:

OCT 15 1982

PAGE 6 OF 6

DEVICE TYPE: Smoke Detector

SAFETY ANALYSIS SUMMARY:

Based on the review of the information and test data contained in the references listed below we conclude that the Model 8201-401C/M1 Smoke Alarm represents only minor construction variations from the previously approved Model 8201-401C device and that these variations will not affect the ability of this device to meet the safety criteria of 32.27, 10 CFR 32.

Furthermore, it is concluded that the General Electric Company has demonstrated that the travel vision models of the previously approved Model 8201-401C and the Model 8201-401C/M1 (the Models SMK-2 and SMK-2M/1) are designed and will be manufactured and used by persons so that the safety criteria of 32.27 will be met.

REFERENCES:

This review and safety analysis of the listed General Electric Company Smoke Alarms are based on the following references:

- ° License No. 06-15796-04, dated August 30, 1978, and all amendments and supporting documents thereto.
- ° License No. 06-15796-03E, dated August 30, 1978, and all amendments and supporting documents thereto.
- ° Safety License Evaluation for License Issued to the General Electric Company Authorizing Distribution of Model No. 8201 and 8202 Smoke Detectors to Persons Exempt from the Requirements for License Pursuant to 30.20, 10 CFR 30, prepared in response to application dated December 19, 1974.
- ° Letters with attachments dated July 20, 1981 and August 20, 1981.
- ° Supersedes registry document 81-64(a)(b)(c) dated September 4, 1981.

ISSUING AGENCY:

U.S. Nuclear Regulatory Commission

Date: OCT 15 1982

OCT 15 1982

Date: _____

Reviewer: _____

Concurrence: _____

Joseph M. Brown
Nathan Bassin

NO: NR-211-D-101-E

DATE: OCT 15 1982
BR. A. 1000

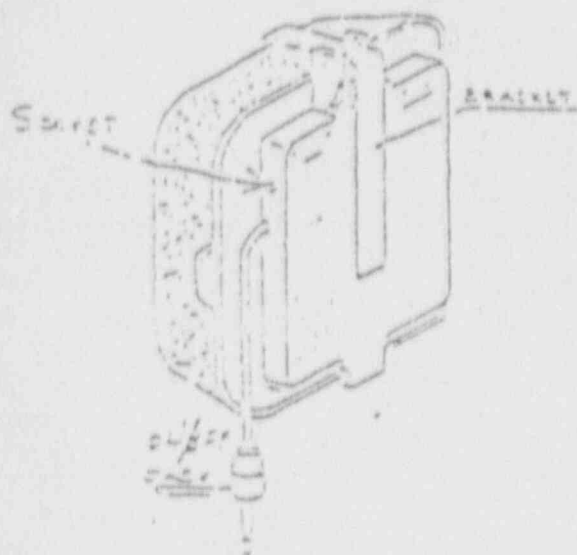


FIGURE A

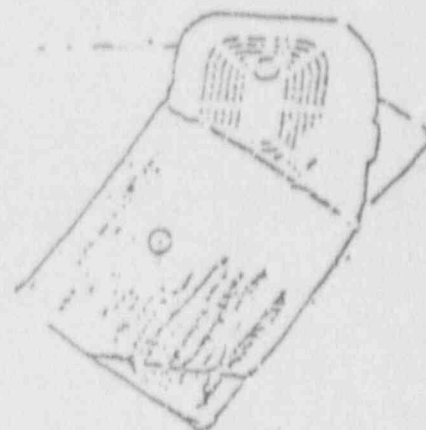


FIGURE B

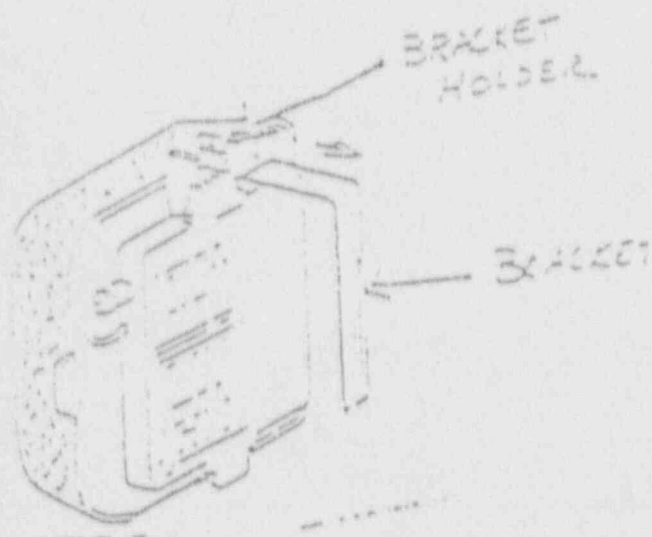


FIGURE C

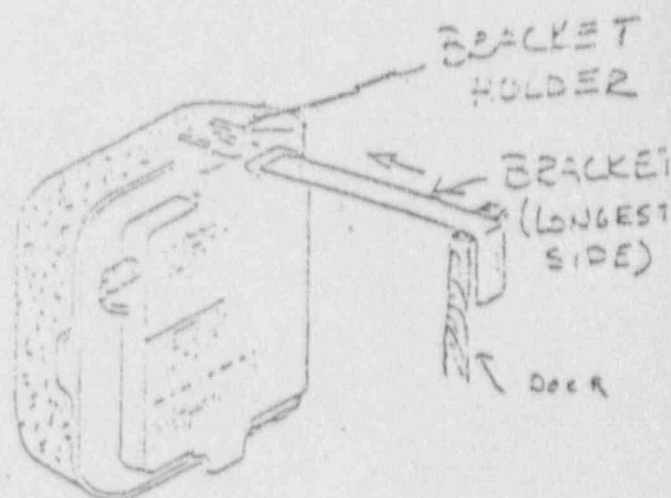


FIGURE D



U.S. Household Products Group

January 22, 1990

Mr. Tony Huffert
U.S.N.R.C.
Mail Stop 6H3
Washington, DC 20554

SUBJECT: DISTRIBUTION LICENSE No. 06-20704-02E

Dear Mr. Huffert:

With reference to our recent telephone conversation regarding Black & Decker smoke detectors, the following items will respond to your questions.

1. With regard to constructional considerations, the models listed in my original application letter are all very similar to the SMK6D/M3 covered under our old license (see. February 5, 1986 letter enclosed). For your reference I have enclosed a copy of the UL report for these units. As you can see from the report the SMK25 is identical to the SMK6D/M3 except for the external plastic housing and the electronic component layout. Model SMK9 is identical to SMK25 except it employs a different battery. The SMK6D/M1 (please add this model to our application) is identical to the SMK6D/M2 except it employs a different IC. Finally, the SMK12 is simply two SMK6D/M1 units packaged together in one unit carton.
2. Per your request I have enclosed a copy of our report on external radiation levels for the SMK25. The SMK9 is essentially identical from a radiation point of view as the chamber assembly, base, and external cover are all identical. I have also enclosed a copy of the report the Irish National Radiological Protection Board which documents Impact and Vibration Test data. Consideration was given to the Fire and Immersion Tests. However, since source type, material, holder, and plastic ion chamber cover material have not been changed, prototype testing reported in previous G.E./Black & Decker license applications are applicable to the SMK25.
3. Enclosed, find samples as follows: One each of models SMK6D/M3, SMK6D/M1, and SMK25, and packaging and product literature for models SMK12 and SMK9. You will notice that the SMK6D/M3 is packaged in a carton designated SMK6D. This is because when the SMK6D/M2 (mentioned in the UL report) was in production, either the /M2 or the /M3 would be packaged in the SMK6D carton as they were for all intents and purposes the same unit. We wish to retain the SMK6D designation on the carton to allow for future minor model variations of the SMK6D line. Currently, however, only the /M3 is packaged in this carton.

January 22, 1990
Page - 2 -

4. As required per 10CFR32.29C I have also enclosed a copy of our Domestic Shipment History report which includes data on quantities shipped from our warehouses back through 1983.

Thanks very much for your attention to our application. Please let me know if you require anything further.

Sincerely,

Mary Lou Meigs

Mary Lou Meigs
Senior Coordinator of
Engineering Standards

MLM/0185ML

E.I. CO. LTD SMOKE DETECTORS

EXTERNAL RADIATION LEVELS

The E.I. Co. Ltd., manufactured ionization chamber smoke detector marketed as Black & Decker Model SMK25 is very similar to units previously licensed for distribution under GE and Black & Decker. Each smoke detector contains a single Am-241 source with nominal activity of 0.9 uCi.

The external radiation exposure rates at the surface and 5 cm and 25 cm from the surface of the model SMK25 ionization chamber smoke detector were measured using a Ge(Li) detector with a multi-channel analyzer system. A 0.00748 Uci Am-241 standard was counted using the same system. A conversion factor, the ratio of calculated exposure rate to net count rate under the 60 keV peak, was determined.

The exposure rate at 5cm from standard source was calculated as follows:

Source activity = 0.00748 uCi

36% of Am-241 disintegrations produce a 60 keV gamma photon

Exposure rate = (energy fluence) x (mass absorption coefficient)

$$\begin{aligned} & 0.00748 \text{ uCi} \times 2.2 \times 10^6 \text{ d/m-uCi} \times 0.36 \times 60 \text{ keV}/\gamma \times 60 \text{ m/hr} \\ = & \frac{4\pi (5 \text{ cm})^2 \times 6.24 \times 10^8 \text{ keV/erg} \times 86.9 \text{ erg/g-R}}{1} \\ & = 1.25 \times 10^{-6} \text{ R-g/h-cm}^2 \text{ at 5 cm} \end{aligned}$$

Mass absorption coefficient (μ_p) = 0.0292 cm²/g (1970 Edition of the Radiological Health Handbook).

$$\begin{aligned} \text{Exposure rate (5 cm)} &= 1.25 \times 10^{-6} \text{ R-g/h-cm}^2 \times 0.0292 \text{ cm}^2/\text{g} = 3.66 \times 10^{-8} \text{ R/h} \\ &= 3.66 \times 10^{-2} \text{ uR/h} \end{aligned}$$

Net count rate under the 60 keV peak = 0.942 c/s

Standard deviation = 7.2%

$$\text{Calibration factor} = 3.66 \times 10^{-2} \text{ uR/h}/0.942 \text{ c/s} = 3.89 \times 10^{-2} \text{ uR/hr/c/s}$$

The exposure rates from the units are directional. The source is acentrically located in the units. Therefore, the exposure rates vary considerably due to differences in geometry and shielding by components of the smoke detector.

The exposure rate over the source was measured for two units and the two measured exposure rates were within 15%.

Exposure rates were comparable to, or below maximum exposure rates measured on the GE model 9201-401C/M1.

James E. Johnson, PhD, CIH
Wester Radiation Consultants Inc.,
Fort Collins,
Colorado 80526

TABLE I

E.I. Co. Ltd. Model SMK25 Ionization Smoke Detector

External Radiation Levels

<u>Detector Position</u>	<u>Exposure Rate (uR/hr)</u>		
	<u>Surface</u>	<u>5cm</u>	<u>25cm</u>
Front Center	1.94	0.98	*
Front Over Source	3.19	1.13	0.09
Back Center	1.22	0.82	*
Back Over Source	2.00	0.93	*
Side 1	0.47	0.17	*
Side 2	0.25	0.11	*
Side 3	0.11	0.04	*
Side 4	0.23	0.08	*

* Measurement not taken



National Radiological Protection Board, Northern Centre, Hospital Lane, Cookridge, Leeds LS16 6RW
Telephone: (0532) 679041 - Fax: (0532) 613190

Consumer Products Report

NRPB/CP 3/032

Report for:

Mr. N. Colleary,
The E.I. Company Limited,
Shannon,
County Clare,
IRELAND.

Samples:

Single Station Ionisation Chamber Smoke
Detectors, Model No. A9428.

Purpose:

Radiological Assessment

Date of test:

21st October, 1988

Date of report:

24th October, 1988

Introduction

The ionisation chamber smoke detector contains an americium-241 source with an activity of 33.3 kBq (0.9 μ Ci). The detectors were assessed for compliance with the requirements of the Nuclear Energy Agency (Ref. 1).

NEA Preliminary Tests

Access to the source

Access to the interior of the detector is gained by lifting the hinged lid. Access to the source itself can only be achieved by forcibly removing the ionising chamber.

Labelling and marking

On the hinged lid is an adhesive label bearing the name and address of the manufacturer. The top of the ionisation chamber is embossed with the trefoil symbol and the wording 'Radioactive, Americium-241 0.9 μ Ci'.

Dose rates

A photon spectrum from a single smoke detector was accumulated using a lithium drifted silicon detector. Dose rates were calculated using the known efficiency of the silicon detector and appropriate dose rate conversion factors. The results were used to calibrate a low energy photon scintillation probe. Dose rates from the other detectors were measured using the scintillation probe.

The maximum dose equivalent rate measured was $1.2 \times 10^{-2} \mu\text{Sv.h}^{-1}$ at a distance of 0.1 m from the surface of the smoke detector. The NEA requires that the dose equivalent rate does not exceed $1 \mu\text{Sv.h}^{-1}$ at 0.1 m from the surface of the smoke detector.

Contamination

Surface contamination was assessed by wiping each detector with methanol moistened swabs and measuring the transferred activity using liquid scintillation counting. The following areas of the detectors were checked:

- (i) the inner surface of the smoke detectors' lids;
- (ii) the outer surface of the ionisation chambers.

In all cases the levels of radioactive contamination assessed were less than 0.37 Bq.cm^{-2} [$10^{-5} \mu\text{Ci.cm}^{-2}$]. The NEA states that the smoke detector shall fail the tests if the contamination level exceeds this value.

Additional NEA Tests

The NEA testing programme is intended to simulate the damage and other effects produced by normal use, credible abuse and likely accidental damage. The program is detailed in ref. 1. The integrity of the sources before and after each test was assessed principally by wipe testing as described above. With the exception of the 600°C and 1200°C fire tests, the results are given below.

Test	Activity transferred from the source after test
Temperature	< 4.0 Bq
Impact	< 4.0 Bq
Drop	4.8 Bq
Vibration	< 4.0 Bq

A source is considered to have retained its integrity if the removed activity is less than 185 Bq. [5 nCi].

Fire Tests at 600°C and 1200°C

The procedure and apparatus used in the 600°C and 1200°C tests are described in detail in ref. 1.

The measured activities in each part of the apparatus after the tests are given in the table below.

Apparatus	Measured Activity in Bq	
	600°C	1200°C
Vapour trap	< 37	< 37
Filter	< 0.37	< 0.37
Debris	< 0.37	-
Source	< 0.37	-
Total	< 38.1	< 37.4

A detector is considered to have failed the 600°C test if the sum of the activity remote from the source exceeds 185 Bq. (5 nCi).

For the 1200°C test a detector is considered to have failed if the activity in the vapour trap and on the filter exceeds 1% of the source activity.

Conclusions

The smoke detectors performed satisfactorily in the NEA tests. It must be noted however, that for full compliance with the NEA recommendations, the markings on the top of the ionisation chamber should be duplicated on the back of the smoke detector so as to be clearly visible when the detector is removed from its mounting. For such marking, the trefoil sign may be replaced by a label bearing the words "This smoke detector contains radioactive material which presents no significant hazard to health if used in accordance with the instructions" or similar wording.

It should also be noted that all labelling and marking should be such as to remain clearly legible during the expected lifetime of the ionisation chamber smoke detector.

The conclusion of this report applies also to the following detector models.

Black and Decker	A9428
	SMK25
	SMK30
	A9429
E.I.	EI 100S
	EI 100SP

- all of which are identical.

The following detectors are identical to the above with the exception of minor modifications to the electronics.

Black and Decker A9422
 A9423
 A9424
 A9425

Black and Decker SMK12 *
 SMK6D *
 A9426
 A9427
 A9430
 A9431
 SMK20

E.I. EI 100B
 EI 100BP
 EI 100P
 EI 100PP
 EI 100C
 EI 100CP
 EI 100R
 EI 100RP

It is therefore considered that all the detector models listed above would perform exactly as the detector tested in this report.

J. Dunderdale

Reference

1. Recommendations for ionisation chamber smoke detectors in the implementation of radiation protection standards (NEA 1977).



BLACK & DECKER

*reference
copy*

F

U.S. Household Products Group
February 5, 1986

Material Licensing Branch
Division of Fuel Cycle and Material Safety
US Nuclear Regulatory Commission
Washington, DC 20555

RE: LICENSE 06-20704-02E

To whom it may concern:

This is a supplemental information letter for your files relative to the alternate circuitry for our Model SMK-6/M2 Smoke Alarm.

We plan to use an alternate electronic circuitry in the above model and will be designed as M3. The notation on the outside packing will have Model SMK6D/M3 plus this same notation will be on the unit carton and also the smoke alarm unit. This will provide us with sufficient information for traceability.

There are no changes relative to packaging colors, radiation levels or performance of the M3 units over that experienced with the M2 units. The reference description for this M2 unit is contained in our letter of March 15, 1984. Basically, this is the same unit except for utilizing an alternate electronic circuit.

Enclosed please find our check in the amount of \$120 to amend the possession and distribution licenses.

Your assistance in expediting this request will be greatly appreciated as we hope to be able to be in production by March 1, 1986. If you have any questions, please do not hesitate to call.

Very truly yours,

George A. Decker
for Wayne T. Morris

WTM:mlt

Enclosure

DOMESTIC SHIPMENT HISTORY REPORT

** YIC ROLLING 12, ROLLING 12 VX, ROLLING 5 VX, ROLLING 3 VX

DOMESTIC SHIPMENT HISTORY REPORT																		FULL YEAR
FIRE SAFETY PRODUCTS:																		
	JAN	FEB	MAR	1ST QTR	APR	MAY	JUN	2ND QTR	YTD	JUL	AUG	SEP	3RD QTR	YTD	OCT	NOV	DEC	4TH QTR
1981	0.3	0.0	0.0	0.0	0.0	0.3	16.6	16.6	16.6	35.1	36.0	31.1	102.2	118.8	26.8	32.9	67.6	127.3
1982	29.2	37.4	35.7	102.3	22.4	21.3	84.3	128.0	230.3	40.8	43.0	64.1	147.9	378.2	123.3	98.1	172.1	393.5
1983	62.1	93.0	70.3	225.4	33.0	38.9	70.3	142.2	367.6	111.4	67.0	118.4	296.8	664.4	40.1	51.4	44.8	15.3
1984	33.1	59.7	77.9	169.8	37.0	20.2	47.1	104.3	274.1	58.2	58.3	90.4	295.9	481.0	70.1	34.1	60.1	16.3
1985	33.9	50.5	45.8	130.2	39.6	26.9	36.3	102.8	253.0	36.1	66.6	35.6	138.5	371.5	70.7	47.7	32.8	151.2
1986	30.1	38.4	63.8	132.3	24.5	43.7	67.8	136.0	268.3	38.7	54.5	85.9	179.1	447.4	74.7	60.9	40.6	176.2
1987	39.5	18.2	32.9	90.6	18.0	41.4	40.4	99.8	190.4	34.6	28.0	29.9	92.5	282.9	44.0	41.9	85.9	368.8
1988	409.4	-33.5X	-42.8X	-47.7X	1.5	10.6	16.1	28.2	28.2	2.0	15.9	22.0	39.9	68.1	0.0	0.0	0.0	0.0
1989	6.0	13.3	11.2	30.5	18.9	9.5	15.6	44.0	74.5	9.5	8.5	6.0	24.0	98.5	12.6	13.4	29.1	75.8
1990	153.6	35.8X	36.1X	53.4X	0.0	0.0	0.0	0.0	0.0	151.3	1.5	43.8	196.6	196.6	0.0	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.7	0.2	2.0	3.5	0.5	0.4	0.0	0.9
1992	0.2	-0.5	0.6	0.3	0.1	1.1	0.3	1.5	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1993	4.7	-98.7X	-98.7X	-98.7X	0.0	0.0	0.0	0.0	2.4	0.0	1.1	1.7	2.8	5.2	0.0	0.0	0.0	0.0
1994	0.0	0.9	2.4	2.4	0.0	0.0	0.0	0.0	3.2	0.3	2.0	4.8	7.1	10.3	0.9	3.8	3.8	8.5
1995	0.2	0.5	0.9	1.6	0.4	0.3	0.9	1.6	4.2	0.6	2.9	1.9	5.4	9.6	2.6	2.5	5.1	14.7
1996	0.4	0.7	0.7	1.8	0.5	0.7	1.2	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1997	18.5	20.1X	-7.7X	-26.3X	0.2	0.0	0.4	0.6	6.9	0.0	1.5	2.6	4.1	11.6	0.0	0.0	4.0	4.0
1998	2.2	1.4	2.7	6.3	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.4	1.6	1.6	0.0	0.0	0.0	0.0
1999	15.0	N/A	N/A	N/A	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.1	0.9
2000	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.6	13.5	0.0	0.0	0.0	0.0	13.5	0.0	0.0	0.0	0.0
2001	0.0	0.1	12.8	12.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2002	N/A	N/A	N/A	N/A	2.4	3.1	12.6	18.1	28.5	15.4	27.2	20.9	63.5	92.0	0.0	0.0	0.0	0.0
2003	0.8	2.5	7.1	10.4	16.6	4.0	4.3	24.9	59.7	5.6	5.8	4.4	15.6	75.3	5.3	7.4	8.3	23.3
2004	14.9	7.0	12.9	34.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2005	96.3	-10.0X	-64.2X	-52.4X	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2006	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2007	5.6	0.6	12.4	18.6	-1.2	0.0	1.9	0.7	19.3	0.3	-0.3	0.0	0.0	19.3	4.1	8.2	6.6	18.9
2008	-3.0	-0.4	0.0	-3.4	5.2	0.6	24.1	30.9	27.5	1.0	5.6	0.7	7.5	34.8	0.1	-0.9	0.0	-0.8
2009	34.9	39.0X	N/A	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1

INVENTORY DEPLETED

all absolute versions are similar to the SKK25 except for minor cosmetic differences

MAY 04 1989

Black & Decker
ATTN: Ms. Mary Lou Meigs
Housewares Group
6 Armstrong Road
Shelton, Connecticut 06484

Docket No. 030-21087
License No. 06-20704-02E
Control No. 110283

SUBJECT: LICENSE RENEWAL APPLICATION

Gentlemen:

This is to acknowledge receipt of your application for renewal of the material(s) license identified above. Your application is deemed timely filed and accordingly, the license will not expire until final action has been taken by this office.

Any correspondence regarding the renewal application should reference the control number specified and your license number.

Sincerely,

151

J. Bruce Carrico
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety

DISTRIBUTION
IMNS Central File
Docket r/f

NMSS r/f
BCarrico

IMAB r/f

OFC:IMAB	:	:	:	:	:	:
NAME:JBCarrico:	:	:	:	:	:	:
DATE:05/4/89	:	:	:	:	:	:

OFFICIAL RECORD COPY



U.S. Household Products Group

April 20, 1989

Ms. Glenda Jackson
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: RENEWAL OF MATERIALS LICENSES
06-20704-01 AND 06-20704-02E
MY LETTER OF FEBRUARY 14, 1989

YOUR REFERENCE: CONTROL NUMBERS 110282 AND 110283

Dear Ms. Jackson:

Thank you for your letter of April 6, 1989 informing us of the appropriate fees for renewal of our Licenses. Enclosed, find a check for \$350.00 as requested in your letter. Please forward our application to the Licensing Staff for processing.

If you require anything further, I may be reached at (203)926-3116.

Sincerely,

Mary Lou Meigs
Mary Lou Meigs
Senior Coordinator of
Engineering Standards

MIM/ J59ML

APR 06 1989

Black & Decker (U.S.) Inc.
ATTN: Ms. Mary Lou Meigs
Sr. Coordinator of Engineering Standards
6 Armstrong Road
Shelton, CT 06484-4797

Gentlemen:

This refers to your letter dated February 14, 1989, for renewal of Materials Licenses 06-20704-01 and 06-20704-02E.

Renewal fees totalling \$350 are required as specified in fee Categories 3P (\$120) and 3H (\$230) of 10 CFR 170, copy enclosed. Payment should be made to the U.S. Nuclear Regulatory Commission and mailed to my attention at our Washington, D.C. address.

Your application will be forwarded to the Licensing staff for processing upon receipt of the fee. When submitting the fee, please refer to CONTROL NUMBERS 110282 and 110283.

If we do not receive a reply from you within 30 calendar days from the date of this letter, we shall assume that you do not wish to pursue your application and will void this action.

Sincerely,

Signed by:
Glenda Jackson

Glenda Jackson
License Fee Management Branch
Division of Accounting and Finance
Office of the Controller

Enclosure:
10 CFR 170

DISTRIBUTION:

~~Pending Fee File~~
OC/DAF R/F
LFMB R/F (2)
DW/REGI/BLACK & DECKER

OFFICE: OC/LFMB *tk*
SURNAME: SKimberley:lb/kb
DATE: 04/5 /89

OC/LFMB *8*
GJackson
04/6 /89

SOURCE AND DEVICE EVALUATION TECHNICAL ASSISTANCE REQUEST

TO: STEVEN BAGGETT, NMSS/IMNS, Mail Stop OWFN-6H3

FROM: LTMB REGION: I II III IV V HQ (Circle One)

FTS PHONE NO. 28743 DATE: 3/15/89

APPLICANT Black & Decker LETTER/APPLICATION DATE 2/14/89

MAIL CONTROL NO.(S) 110283 LICENSE NO.(S) 06-20704-02E

REQUEST ACTION (CHECK APPROPRIATE BOX)

() SOURCE REVIEW () DEVICE REVIEW () CUSTOM

() AMENDMENT OF REGISTRATION SHEET NO. _____

() OTHER: _____

FOR NMSS/IMAB USE ONLY CONTROL NO. _____ MODELS: SANK 85
SANK 6PL (Signum)
SANK 4
SANK 12

DATE RECEIVED _____ REVIEWER _____

TYPE OF ACTION (INDICATE NO. OF EACH ON THE LINES)

() SOURCE REVIEW () DEVICE REVIEW

() FORMAL () AMENDMENT () CUSTOM Admin

() NO LICENSING ACTION REQUIRED

TOTAL REVIEWER HOURS SPENT ON EVALUATION _____ DATE COMPLETED _____

NOTES: _____ DEFICIENCY LETTER _____ DATE COMPLETED _____

_____ DEFICIENCY PHONE CALL _____ DATE MADE _____

_____ RESPONSE TO DEFICIENCY _____

_____ TYPING DRAFT IN OUT FINAL IN OUT

FOR ARM/LFMB USE ONLY

FEEES THAT HAVE BEEN PAID FOR : (INDICATE NO. OF EACH ACTION ON THE LINES)

() SOURCE REVIEW () DEVICE REVIEW () FORMAL

() AMENDMENT () ARM/LFMB () CUSTOM

NOTES: _____ DATE TO ARM/LFMB: _____

_____ DATE RETURNED: _____

_____ SIGNED: _____

_____ DATE: _____

030-2087



U.S. Household Products Group

February 14, 1989

Dr. John E. Glenn, Ph.D.
Division of Radiation Safety and Safeguards
U.S. Nuclear Regulatory Commission
Region 1
631 Park Avenue
King of Prussia, PA 19406

HPDS

Log	Mar 1
Remitter	
Check No.	460045
Amount	7.35
Fee Category	2H
Type of Fee	REN
Date Check Rec'd.	4/25/89
Date Compiled	
By:	S. Kimbrell

SUBJECT: LICENSE NOS. 06-20704-01 AND 06-20704-02E

Dear Dr. Glenn:

We wish to make several amendments to the subject Licenses covering Black & Decker smoke detectors. The amendments consist of a change in distribution structure within the U.S. as well as addition and deletion of several specific model numbers.

The enclosed outline describes in detail all pertinent information with regard to origin and distribution of all Black & Decker smoke detector units. We request that the subject licenses be amended to conform to these new guidelines - that is deletion of all previous testing and distribution locations and addition of the current locations as on the outline.

We also wish to inform you of a change in address of the Licensee. Our new address is as follows:

Black & Decker (U.S.) Inc.
6 Armstrong Road
Shelton, CT 06484

Radiation Safety Officers: Wayne E. Morris
Mary Lou Meigs

This may also be an appropriate time to renew our Licenses as the expirations are August and October of this year. Please let us know what we will need to do to that end.

Thank you for your assistance with these amendments. If you require further information, I may be reached at (203)926-3116.

Sincerely,

Mary Lou Meigs 110283
Mary Lou Meigs
Sr. Coordinator of Engineering Standards

MLM/0003ML
attachment

OFFICIAL RECORD COPY ML 10

FEB 16 1989

BLACK & DECKER (U.S.) INC.
LICENSE NO'S.: 06-20704-01
06-20704-02E
DOCKET NO.: 030-20744
CONTROL NO.: 103738

SCENARIO OF SMOKE DETECTOR ORIGIN AND MOVEMENT

Source: Produced by: Nuclear Radiation Development, Inc.
2937 Alt Boulevard North
Grand Island, N.Y. 14072
716-773-7634

Nuclear Material: Americium 241
Amount per Unit: 0.9 micro Curie
Shipped with Certificate to Manufacturer

Manufacturer: E.I. Company Ltd.
Shannon, Ireland

Source is assembled into Smoke Detectors.
Units are Production Line Tested and Packaged for Shipment.

Arrival in U.S.A.:

Black & Decker Smoke Detectors arrive in the United States
from E.I. Co. at:

Black & Decker
C/O Lents Warehouse & Distributors
7010 Sherwin Rd.
Greensboro, N.C. 27419

The smoke detectors may then be sent to two smaller
warehouses in the United States for further distribution to
wholesalers and retailers. Our license allows for 2.4 curie
total to be in our possession at any one time or over
2,600,000 units at 0.9 micro curies per unit. The warehouse
locations are as follows:

Black & Decker
2721 Millbrook Road
Raleigh, N.C. 27658

Black & Decker
11671 Dayton Drive
Rancho Cucamonga, CA 91730

Testing of Finished Smoke Detector Units:

We wish, if possible to retain the rights to test finished smoke
detectors units for the following areas:

Battery Voltage
Performance at Low Battery Voltage
Smoke Detector Performance
Electrical Circuit Continuity Check

Any testing deemed necessary will be conducted at Black & Decker's
Shelton facility.

BLACK AND DECKER (U.S.) INC.

6 ARMSTRONG ROAD

SHELTON, CT 06484

Current Smoke Detector Models:

SMK25

SMK6D

SMK9

SMK12 (consists of 2 SMK6D in one package)

not in report of NRPPB dtd 24 Oct 1988 - see index for details

The Following Model Numbers are Obsolete:

SMK2, SMK2D

SMK2/M1, SMK2/M1D

SMK6/M1, SMK6/M1D

SMK6/M2, SMK6/M2D

8201-401, 8201-401D

8201-401C, 8201-401CD

8201-401C/M1, 8201-401C/M1D

Comments

The source and amount of Nuclear Material is the same for all models. All models are sold under the Black & Decker brand name.

MLM/0003ML



HARVARD SCHOOL OF PUBLIC HEALTH
BOSTON, MASSACHUSETTS

THIS CONFIRMS THAT

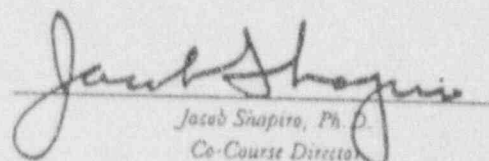
MARY LOU MEIGS

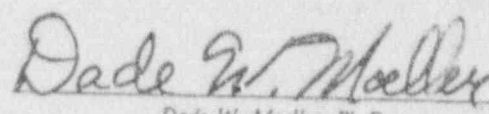
participated in the short course entitled

OCCUPATIONAL & ENVIRONMENTAL
RADIATION PROTECTION

*conducted by the
Office of Continuing Education*

15th -- 19th August 1988


Jacob Shapiro, Ph.D.
Co-Course Director


Dade W. Moeller, Ph.D.
Co-Course Director and
Associate Dean for Continuing Education

119283

OFFICIAL RECORD COPY ML 10

FEB 16 1989

4/19

Susan -

Steve B. confirmed
his admin. changes
are not considered
"review" by the
licensing staff, and
that he'd like to
add the info for
the smoke detectors
from Seattle Corp.
onto the sheets
also, & that it
is, indeed, a good
idea to combine the
requests. Andy Kimball



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

MAUREEN,

I talked to Steve
about this request.

please control as an
Amendment - A fee
is required.

Mike L.

4/17/91

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

(FOR LFMS USE)
INFORMATION FROM LTS

Program Code: 03255
Status Code: 2
Fee Category: 3H
Exp. Date: 19891031
Fee Comments: _____

LICENSE FEE TRANSMITTAL

A. REGION HQ

1. APPLICATION ATTACHED

Applicant/Licensee: BLACK & DECKER (U.S.) INC.
Received Date: 910418
Docket No: 3021087
Control No.: 021129
License No.: 06-20704-02E
Action Type: Amendment

To HQs to be paid &
combined before
review with the
Renewal, which is
Control No. 110283.

2. FEE ATTACHED

Amount: _____
Check No.: /

3. COMMENTS

Signed M
Date 4/15/91

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered /)

1. Fee Category and Amount: 3H

2. Correct Fee Paid. Application may be processed for:

Amendment /
Renewal _____
License _____

3. OTHER _____

Signed SK
Date 4/20/91

VOIDED
4/22/91

LICENSING TRACKING SYSTEM

PAGE: 1

LTS WORKSHEET

DOCKET NO : 03021087 LICENSE NO : 06-20704-02E STATUS: 2
MAIL CONTROL: 021128 RECEIPT DATE : 910416 ACTION TYPE: 4
FED. GOVT : N INST. CODE : 20704 LICENSE REGION: 0
ISSUE DATE: 841031 ORIGINAL DATE: _____ EXPIRATION DATE: 19891031
NAME : BLACK & DECKER (U.S.) INC. DECOM FIN ASSUR REQD: N
 SUBM: _
DEPT/BUREAU: HOUSEWARES GROUP CONT PLAN REQD: _ APPRV: _
BUILDING : _____
STREET : 6 ARMSTRONG ROAD
CITY : SHELTON STATE: CT ZIP: 064844797
CONTACT PERSON: MARY LOU MEIGS PHONE: _____

PRIMARY PGM CODE : 03255 SECONDARY PGM CODES: _____
INSPECTION REGION: 1 PRIORITY CODE: 5 INSPECTION CATEGORY: E
RADIATION SAFETY OFFICER: _____

STATES WHERE USE IS AUTHORIZED: 1 0 - ALL LISTED STATES
 1 - SAME AS STATE IN ADDRESS
 2 - ALL STATES
 3 - NON-AGREEMENT STATES
AUTHORIZED STATES: _____ (USE ONLY IF ABOVE IS ZERO)
REPORTING IDENTIFICATION SYMBOL: _____

APPROVAL FOR REDISTRIBUTION: N STORAGE ONLY: N
TEMPORARY JOB SITES: N INCINERATION: N
BURIAL: N

EXEMPTIONS: (1) _____ (2) _____

DECOMMISSIONING FINANCIAL ASSURANCE INFORMATION

PAGE: 4

DOCKET: 03021087 LIC: 06-20704-02E NAME: BLACK & DECKER (U.S.) INC.

PARTY ISSUING MECHANISM: ASSUR TYPE: (C=CERT D=DFP)
NAME: MECH TYPE:
ADDR1: MECH AMOUNT:
ADDR2: APPROVED? DATE:
CITY: EXPIRES ? DATE:
STATE: ZIP:

PARTY ISSUING MECHANISM: ASSUR TYPE: (C=CERT D=DFP)
NAME: MECH TYPE:
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ADDR2: APPROVED? DATE:
CITY: EXPIRES ? DATE:
STATE: ZIP:

PARTY ISSUING MECHANISM: ASSUR TYPE: (C=CERT D=DFP)
NAME: MECH TYPE:
ADDR1: MECH AMOUNT:
ADDR2: APPROVED? DATE:
CITY: EXPIRES ? DATE:
STATE: ZIP:

INDIVIDUAL USERS

PAGE: 3

NAME

AUTHORIZATION

ADDRESS WHERE MATERIAL IS USED OR POSSESSED

BUILDING:	_____	_____
ROOM:	_____	_____
STREET:	_____	_____
CITY:	_____	_____
STATE:	_____	_____
BUILDING:	_____	_____
ROOM:	_____	_____
STREET:	_____	_____
CITY:	_____	_____
STATE:	_____	_____
BUILDING:	_____	_____
ROOM:	_____	_____
STREET:	_____	_____
CITY:	_____	_____
STATE:	_____	_____
BUILDING:	_____	_____
ROOM:	_____	_____
STREET:	_____	_____
CITY:	_____	_____
STATE:	_____	_____
BUILDING:	_____	_____
ROOM:	_____	_____
STREET:	_____	_____
CITY:	_____	_____
STATE:	_____	_____
BUILDING:	_____	_____
ROOM:	_____	_____
STREET:	_____	_____
CITY:	_____	_____
STATE:	_____	_____
BUILDING:	_____	_____
ROOM:	_____	_____
STREET:	_____	_____
CITY:	_____	_____
STATE:	_____	_____
BUILDING:	_____	_____
ROOM:	_____	_____
STREET:	_____	_____
CITY:	_____	_____
STATE:	_____	_____

POSSESSION LIMIT INFORMATION

PAGE: 2

MATERIAL TYPE	:	NPA	FORM CODE:	NPA	AGGREGATE CODE:	NPA
MODEL NUMBER	:					
DESCRIPTION	:					
TOTAL QUANTITY	:	0000000.000000000	UNIT:			
OTHER	:		# SOURCES:			
MATERIAL TYPE	:		FORM CODE:		AGGREGATE CODE:	
MODEL NUMBER	:					
DESCRIPTION	:					
TOTAL QUANTITY	:		UNIT:			
OTHER	:		# SOURCES:			
MATERIAL TYPE	:		FORM CODE:		AGGREGATE CODE:	
MODEL NUMBER	:					
DESCRIPTION	:					
TOTAL QUANTITY	:		UNIT:			
OTHER	:		# SOURCES:			
MATERIAL TYPE	:		FORM CODE:		AGGREGATE CODE:	
MODEL NUMBER	:					
DESCRIPTION	:					
TOTAL QUANTITY	:		UNIT:			
OTHER	:		# SOURCES:			
MATERIAL TYPE	:		FORM CODE:		AGGREGATE CODE:	
MODEL NUMBER	:					
DESCRIPTION	:					
TOTAL QUANTITY	:		UNIT:			
OTHER	:		# SOURCES:			
MATERIAL TYPE	:		FORM CODE:		AGGREGATE CODE:	
MODEL NUMBER	:					
DESCRIPTION	:					
TOTAL QUANTITY	:		UNIT:			
OTHER	:		# SOURCES:			



BLACK & DECKER

U.S. Household Products Group

April 11, 1991

Mr. Tony Huffert
U.S.N.R.C.
Mail Stop 6H3
Washington, DC 20554

SUBJECT: Distribution License No. 06-20704-02E

Dear Mr. Huffert:

In reviewing our records recently we have found that we have not received a copy of the subject license which should have been renewed last year. The enclosed letter acknowledges our renewal application, but we have no record of actually receiving the renewed license. Would look into this at your earliest convenience and forward to my attention a copy of the renewed license?

In addition, we will need to add four new smoke detectors to the license. The new models are purchased from Maple Chase Co., a Division of Seatt Corp., Downers Grove, IL, and are currently licensed for distribution under Seatt's license number 12-1553702E. The new model numbers are SMK100, SMK200, and SMK300 and are designated by Seatt as models "A", "B", and "C", respectively. The enclosed document from Underwriters Laboratories outlines our Multiple Listing of these units with Seatt.

Thank you in advance for your help with this. If you require anything further I may be reached at (203)926-3113.

Very truly yours,

Mary Lou Meigs

Mary Lou Meigs
Senior Coordinator of
Engineering Standards

REC'D

APR 16 1991

021129



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 04 1989

Black & Decker
ATTN: Ms. Mary Lou Meigs
Housewares Group
6 Armstrong Road
Shelton, Connecticut 06484

Docket No. 030-21087
License No. 06-20704-02E
Control No. 110283

SUBJECT: LICENSE RENEWAL APPLICATION

Gentlemen:

This is to acknowledge receipt of your application for renewal of the material(s) license identified above. Your application is deemed timely filed and accordingly, the license will not expire until final action has been taken by this office.

Any correspondence regarding the renewal application should reference the control number specified and your license number.

Sincerely,

A handwritten signature in cursive script, reading "J. Bruce Carrico", is written over the typed name.

J. Bruce Carrico
Medical, Academic, and Commercial
Use Safety Branch
Division of Industrial and
Medical Nuclear Safety

(NE)

UNDERWRITERS LABORATORIES INC.

MULTIPLE LISTING CORRELATION SHEET ^{NBK}
(Controlling Office)

ML File No. S3023

Issued: May 30, 1989

Revised:

MULTIPLE LISTING
of

SINGLE- AND MULTIPLE-STATION SMOKE DETECTORS
(UTGT)

for

[356531003] Black & Decker (U S) Inc.
Household Products Group
Shelton, CT
Basically Listed for

[574414001] Maple Chase Co.
Downers Grove, IL

Basically listed products covered by Procedure and/or Reports under
File No. S1966

<u>Products Covered</u>	<u>Vol.</u>	<u>Basic Applicant's (Supplier's) Product Designation</u>	<u>Multiple Listee's Product Designation</u>
SS/RV/Ion./	3	A	SMK100
Battery		C	SMK200
		E	SMK300

Code: SS-Single Station, RV-Suitable for use in recreational vehicles.
Ion.-Ionization

MARKING: Same as that described in Follow-Up Service Procedure and/or
Report except for Multiple Listee's name, ML tradename, when
applicable, and product designation.

Prepared by:

Michelle Walters
Michelle Walters
PROGRESS DEPT.

IC: Chihuahua

* DELETES MODEL DUE TO WITHDRAWAL OF BASIC MODEL

(NE)

UNDERWRITERS LABORATORIES INC.

MULTIPLE LISTING CORRELATION SHEET NBK
(Controlling Office)

ML File No. S3023

Issued: December 4, 1984

* Revised: July 8, 1988

MULTIPLE RECOGNITION
of
SINGLE-AND MULTIPLE-STATION SMOKE DETECTORS
UTGT

for

Black & Decker (US) Inc.
Household Products Group
Shelton, CT
Basically Recognized for

EI Company Ltd.
Shannon, Ireland

Basically recognized products covered by Procedure and/or Reports under
File No. S1665

<u>Products Covered</u>	<u>Vol.</u>	<u>Basic Applicant's (Supplier's) Product Designation</u>	<u>Multiple Listee's Product Designation</u>
	1	*	*
		*	*
		*	*
		*	*
		*	*
		*	*
		SMK20	SMK20
		SMK25	SMK25
		SMK30	SMK30
Single-station smoke 1 detector and recreational vehicle		SMK-6/M3	SMK-6D/M3
Single-station, Ion.	1	SMK-9	SMK-9

MARKING: Same as that described in Follow-Up Service Procedure and/or Report
except for Multiple Listee's name, ML tradename, when applicable, and
product designation.

Prepared by:

J. Flentge
J. Flentge

PROGRESS DEPT.

IC: Dublin

DESCRIPTION

PRODUCT COVERED:

Single station smoke detector, battery operated ionization *type, Model SMK9, EI 100F. *still used*

Single station smoke detector, also suitable for use in recreational vehicles, Models SMK6/M2, SMK6/M3, SMK12, SMK20, SMK25, SMK30, EI100B, EI100S. *still used*

ENGINEERING CONSIDERATIONS:

General - The product covered by this Report is intended to detect an abnormal amount of smoke density in the area in which it is installed and to operate on audible signal during this condition. Each unit consists of a resistor, capacitors, and integrated circuit, potentiometer, tapped inductor and an ionization chamber all mounted on a printed wiring board inside an enclosure which has an opening to the outside air.

The Model SMK6/M3 is similar to the SMK6/M2 except the SMK6/M3 responds to a rise in chamber voltage in the smoke mode.

The SMK6D/M1 is a limited production run of an old design. It uses SMK6D plastic and components as described in the description section.

*The EI100B (EI100P), (EI100S) is identical to the SMK6M3 (SMK9), (SMK25) except for model number.

Detectors may employ a center mounted test button with optional LED. See Page 24 for details.

The Model SMK-6/M3 may employ an alternate IC (Sprague SCL5343) and component layout.

The Model SMK-12 consists of two Models SMK-6 series packaged together in one package for sale. The package need only contain one manual.

The Model SMK-20 is similar to the Model SMK-6/M2 except it employs a different enclosure. The Model SMK-30 is similar to the Model SMK-20 except it employs additional circuitry for a "silence" feature.

*

*The Model SMK-9 is a SMK-20 with a Gold Peak 1604S carbon zinc battery and different packaging.

Sensitivity - Detectors will be factory adjusted and sealed and will operate to produce a smoke alarm signal when sufficient smoke is present in the detector chamber. The sensitivity production limits are shown in Table I.

Installation - These detectors are intended for general installation on a vertical wall surface or the ceiling.

The units are intended to be installed in accordance with the manufacturer's installation instructions which are enclosed with each detector and in a manner acceptable to the local inspection authority having jurisdiction. The units are also intended to be installed in accordance with NFPA No. 74 Standard title "Household Fire Warning Equipment".

Maintenance And Testing - After installation, the operation of each unit should be checked roughly by holding a burning match, cigarette, punk stick, or other source of combustion products within a relatively short distance below the unit or it may be tested by the test button provided.

The manufacturer's instructions require a cleaning of the detector so that dust and other matter do not accumulate. The manufacturer also indicates that the battery be replaced when a trouble signal is heard which consists of a sounding of the horn for a short duration (less than 1 s) at a rate of at least once per minute.

Ratings - Each single station device is powered from a Duracell Type MN1604 or Eveready No. 622, 9 V dc alkaline battery rated 500 mA/h. The Model 8201-401C is powered from a Duracell MN1604, 9 V dc alkaline or Eveready 216, 9 V dc carbon zinc battery. The SMK-20 and -30 employ only the Duracell MN1604. *The SMK-35 uses a Gold Peak carbon zinc battery. The SMK-9 *employs a Gold Peak Type 1604S.

OPERATION (NOT FOR FIELD REPRESENTATIVE USE):

The Model 8201-401 and -601 smoke detectors utilize a source of alpha particle radiation (Americium 241) within a smoke detection chamber. The alpha particles ionized the air in the chamber, the resulting positive and negative ions respond to an applied potential across the chamber and so constitute an ionization current.

Combustion products entering the chamber act as recombination centers for the ions, and thus tend to reduce the current. By connecting the chamber in series with a Resistor R1 having a value approximately equal to the resistance of the chamber, any decrease in current will result in a corresponding voltage change. The voltage change is used to switch a MOSFET differential amplifier in the input stage of the integrated circuit, which in turn switches on the piezo electric horn. The threshold voltage of the differential amplifier is set by a trimmer potentiometer VR1 which is set to the desired position and sealed before leaving the factory.

The horn will also be energized to produce a "beep" approximately once a minute when the battery voltage falls below a specified level. The particular threshold level is a property of the integrated circuit and lies between 7.4-8.15 V. An external capacitor is used to control the duration of each "beep" and the interval between "beeps".

Refer to ILL. 29 for details of SMK-20/-30 operation.

Reliability Prediction Calculation - The following reliability prediction calculation was made using the Parts Count Analysis method of MIL Standard 217B. (Refer to ILL. 30 for SMK-20/-30).

File S1665 Vol. 1 Sec. 7
and Report

*Page 3

Issued: 6-11-79
Revised: 4-22-88

REPLACES PAGE 3

JLP/PEP:ryi
pc lbry:dkf

Model SMK-6/M2 And SMK-6/M3

Component	A	B	(C = A x B)
	Failure Rate	Multiplier Factor	Failures Per Million Hours
Integrated Circuit Q1 (Mcl4467 MC14467P1 and MA02P)	0.2319	1.0	0.2319
Capacitor C1	0.41	1.5	0.615
Capacitor C2	0.22	1.5	0.33
Capacitor C3	0.22	1.5	0.33
Resistor R1	0.075	1.5	0.1125
Resistor R2	0.075	1.5	0.1125
Resistor R3	0.075	1.5	0.1125
Resistor R4	0.075	1.5	0.1125
Potentiometer VR	0.46	1.5	0.69
Transistor Q2	0.12	1.0	0.18
Diode D1	0.12	1.0	0.12
Coil L	0.0066	1.0	0.0066

DG/PEP:law

TABLE I

CORRELATED SMOKE BOX SENSITIVITY LIMITS (FACTORY/UL BOXES)
RATED VOLTAGE - GRAY SMOKE

Supply, V	Model	Detector Orientation in Smoke Box Air Flow Into	Obscuration, Percent Per Foot			
			Manufacturer's		UL Box	
			Box		Box	
			Maximum	Minimum	Maximum	Minimum
9 V dc	SMK-6/M2	Same, refer to Fig. 11, Item 2	0.65	1.00	0.63	1.06
9 V dc	SMK-20/-30	Side of detector between horn and battery. Refer to Item 3, Fig. 1.	0.52	0.64	0.72	0.94

Note - Values in parenthesis are for Model 8201-401C/MI (Fig. 10).

CONSTRUCTION DETAILS:

General - Refer to the following paragraphs and associated descriptive pages. The general design, shape, and arrangement shall be as shown unless otherwise indicated.

Spacings - The following minimum spacings shall be maintained at the indicated points:

1. 1/16 in. through air and over surface and integrated circuit pins of opposite polarity and the printed board assembly.

Corrosion Protection - All parts of iron or steel are suitably painted, plated or the equivalent to resist corrosion.

Internal Wiring - All internal wiring is Labeled AWM, minimum 1/64 in. thick insulation.

Potentiometers - All potentiometers are to be sealed after adjustment to prevent the possibility of movement.

MARKING: (All similar except for model number)

General - All marking unless otherwise specified, shall not be less than 3/64 in. (0.12 cm) high. The word "WARNING" in the phrase "Warning - Use of Different Battery..." shall consist of letters at least 1/8 in. (0.318 cm) high.

Homeowner's Manual - Refer to ILL. 4A for Model 8201-401C text and to ILL. 4B for Model SMK-2 text, and ILL. 4C for the Model 8201-401C/MI. The Models SMK-6/MI and SMK-6/M2 manuals are similar to ILL. 4C except for the model number. See ILL. 31A for *Model SMK-25. See ILL. 41 for Model SMK-9.

Nameplate - (May be molded into plastic) Refer to ILLS. 3, A, 3B, 3C and 8 for marking test. The marking for the Model 8201-401C will be similar to that shown in the illustrations with exception of model number and battery types (Duracell MN1604 and Eveready 522). The marking for the Model SMK-6/M2 is similar to ILL. 8 except for model number and an additional battery (Gold Peak 1604P). The following information in ILL. 3 "CAUTION - Contains Americium 241 Radioactive Material. Return to General Electric Service Center For Repair Or Disposal". It is replaced by the following: "Contains Radioactive Material Americium 241 2 Microcuries".

The SMK6M2, SMK20, SMK25 and SMK30 shall have the following additional marking: "WARNING - Test Smoke Detector Operation After Vehicle Has Been In Storage, Before Each Trip And At Least Once Per Week During Use". As an alternate, a peel off label may be included with the owner's manual. Refer to ILL. 11 for details.

The manuals have an additional statement as follows:

"This smoke alarm is equipped with a test button which allows you to check to see that the unit is working. By pressing the test button, you can simulate very accurately what happens when smoke particles enter the sensing chamber. This test will also check the battery to see if it has sufficient power to activate the alarm. It is important that you keep the button depressed for 5-7 seconds until tests are completed and the alarm goes on". (On units with new alternative button arrangements this may be deleted as button response is less than 2 s).

The detector must be labeled with the detector sensitivity plus a tolerance in percent per foot obscuration. The marking should conform to the numbers below:

*SMK6DMI	0.76 +/- 0.28 obsc/ft
SMK6 Series	1.19 / 0.56 obsc/ft
SMK9 Series	1.14 +/- 0.41 obsc/ft

Packaging Carton - The carton shall include the following "This Detector Contains Radioactive Material And Has Been Manufactured In Compliance With U.S.N.R.C. Safety Criteria In 10CFR32.28. The Purchaser Is Exempt From Any Regulator Requirements. Americium 341 0.9 Microcuries". The SMK12 carton must include the model numbers of the individual detectors packaged inside.

Refer to ILLS. 31, 32, 33 and 34 for marking, manual and shipping carton information for Model SMK20/30.

Packaging cards for the SMK25 are shown in ILL. 39.

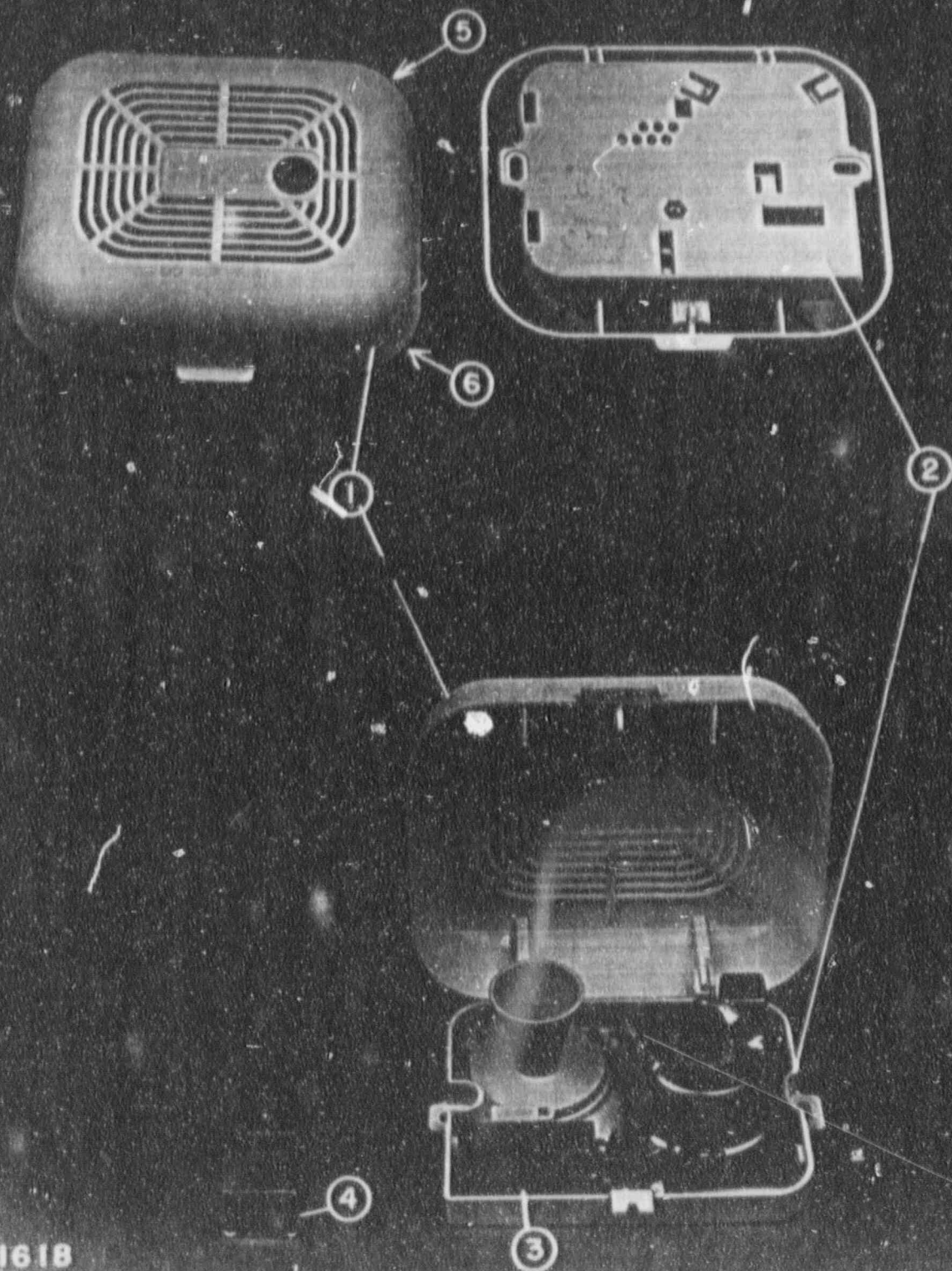
Refer to ILL. 12 for shipping carton information for Model SMK9.

MODELS 8201-401C AND SMK-2
FIG. 1 (K79-1618)

1. Cover - Refer to Fig. 2 for details.
2. Base - Refer to Fig. 3 for details.
- * 3. Battery - Unlisted component, Duracell MN1604.
Refer to File S2329, Vol. 1.
- *4. Alternate Battery - Not used.
- *5. Not used.
6. Smoke Entry Position for Units with Inductor -
Described in Fig. 6.

JLP/PEP:ceo

AND REPORT



MODEL 8201-401C - FIG. 2 (K79-127)

*(This model is obsolete.)

1. Cover - Component Recognized plastic (QMFZ2), manufactured by Dow Chemical Co., Ltd., Type Dow 492. Overall dimensions approx 5-1/2 in. (14.0 cm) long, 1/16 in. (0.16 cm) thick. Provided with two female snap tabs allowing the cover to hinge away from the base and one latching tab to secure the cover. The top has six roughly rectangular concentric openings each approx 3/32 in. (0.24 cm) in width. The length and width of the openings range from 3-5/8 in. (9.21 cm) by 2-13/16 in. (7.14 cm) for the largest to 1-7/8 in. (4.76 cm) by 1-1/16 in. (2.70 cm) for the smallest. The openings are separated by a grillwork of five rectangular sections each approx 1/16 in. (0.16 cm) in width and eight straight sections of 7/64 in. (0.20 cm) width.

The center of the grillwork consists of a solid rectangular section 2-3/16 in. (5.56 cm) long and 7/8 in. (2.22 cm) wide with a 5/8 in. (1.6 cm) diameter hole in one end for the test button. Rather than being flush with the inside of the cover, the grillwork extends inward for an additional 1/16 in. (0.16 cm). See ILL. 5 for exact duplication of openings.

Alternate Plastics - All Component Recognized plastic (QMFZ2). Cycolac T, manufactured by Borg-Warner Chemicals or Borg-Warner Chemicals Europe, Dow Chemical Co. 492U, Gulf Oil Chemicals Co. 5161 and 6560, Monsanto Plastics and Resins Co. 3350, Hercules Inc., Type 6523.

Alternate Plastic - Styron 461, manufactured by Dow Chemical Co.

Alternate Construction - Same as above except refer to ILL. 10.

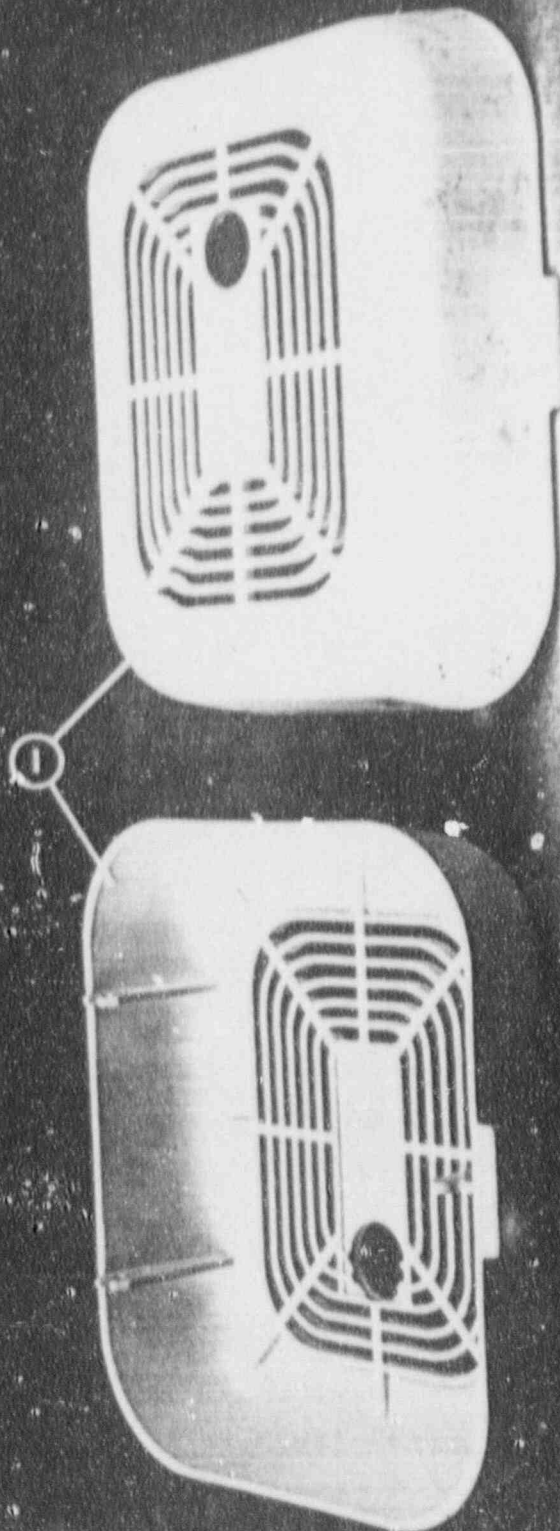
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.VOL. I

SEC. 7

FIG. 2

AND REPORT



K79-127

U.S. AIR FORCE

MODEL 82G1-401C - FIG. 3 (K79-586)

*(This model is obsolete.)

1. Base - Component Recognized plastic (QMFZ2), Cycolac T manufactured by Borg-Warner. Overall dimensions approx 4-1/2 in. (11.4 cm) long, 3-1/2 in. (8.9 cm) wide, 1/2 in. (1.3 cm) deep and 1/16 in. (0.16 cm) thick. Provided with two hinge areas and one tab used for securing the cover. With the cover attached and latched closed the base can be seen to extend for 1/2 in. (1.2 cm) beyond the top edge of the cover when viewed from the side. When viewed from the bottom, the cover extends 9/16 in. (1.43 cm) beyond the outer edge of the base.

The base is provided with three 1/16 in. (1.6 cm) high standoffs which will allow the owner's manual to be located between the base and the wall or ceiling when the detector is installed.

Alternate Plastics - All Component Recognized plastic (QMFZ2). Monsanto Plastics and Resins Co., 440, Cycolac T, manufactured by Borg-Warner Chemicals and Borg-Warner Chemicals Europe, Monsanto 3350, Hercules Inc. 6523.

Alternate Plastic - Styron 461, or Styron 492U, manufactured by Dow Chemical Co.

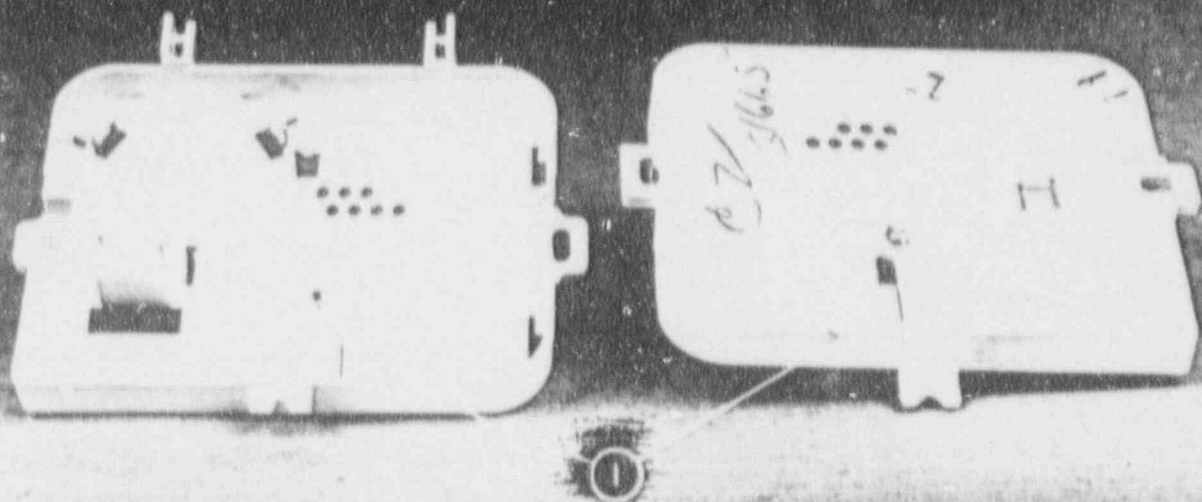
SI 665

VOL. I

AND REPORT

SEC. 7

FIG. 3



K79-586

UNID. LAB. INC.

MODELS 8201-401C AND SMK-2 - FIG. 4 (K79-587)

*(These models are obsolete.)

1. Horn Resonator - Component Recognized plastic (QMFZ2), manufactured by Engineering Polymers, Type No. Noryl SE-90-N. Bottom section is circular in shape with a diameter of approx 1-13/16 in. (4.6 cm). A 1/16 in. (0.16 cm) thick lip extends approx 3/16 in. (0.48 cm) downwards from the outer edge of the circular section. When viewed from below, a raised circular ridge 1-1/8 in. (2.86 cm) in diameter and a circular hole 1/2 in. (1.27 cm) in diameter are visible. Equally spaced around the bottom of the resonator and three latching hooks used to discourage disassembly of the horn. The upper section of the resonator consists of a flaring cylindrical section approx 1-3/16 in. (3.02 cm) high and 1/16 in. (0.16 cm) thick. This section is 5/8 in. (1/6 cm) in diameter at the bottom, widening to a diameter of 1-1/4 in. (3.18 cm) at the top.

Alternate Construction - Same as above except provided with three slots approx 2 mm wide by 14 mm long.

Alternate Plastics - All Component Recognized plastic (QMFZ2). Monsanto Plastics and Resins Co. 448, Borg-Warner Chemicals Cycolac T, General Electric SE-100, Monsanto 3350, Hercules Inc. 6523.

Alternate Plastic - Styron 461 or Styron 492U, manufactured by Dow Chemical.

2. Piezo Horn Element - Half-hand brass approx 1-17/32 in. (3.9 cm) in diameter and 0.013 in. (0.03 cm) thick. On one side is a silver electrode approx 15/16 in. (2.4 cm) in diameter overlaid on a ceramic base. Three wires of approx 0.010 in. (0.25 cm) diameter are soldered to the element. The element is secured to the horn resonator with silicon RIV sealant.
3. Chamber Cover - Aluminum, 1-1/16 in. (2.7 cm) in height, approx 1-7/9 in. (4.8 cm) in diameter at the base and 1/32 in. (0.08 cm) thick. Provided with three openings evenly spaced on the top. The openings are 1-1/8 in. (2.9 cm) long and 1/8 in. (0.32 cm) wide. The cover is secured to the printed wiring board by two "L" shaped nuts extending through the board, and one metal screw and nut. Word on chamber top for Model 8201-401 reads "Contains 2 Microcuries Americium 241", wording for Model 8201-601 reads "Contains .9 Microcuries Americium 241".

MODELS 201-401C AND SMK-2 - FIG. 4 (K79-587)

1. Horn Resonator - Component Recognized plastic (QMF22), manufactured by Engineering Polymers, type number Noryl SE-90-N. Bottom section is circular in shape with a diameter of approx 1-13/16 in. (4.6 cm). A 1/16 in. (0.16 cm) thick lip extends approx 3/16 in. (0.48 cm) downwards from the outer edge of the circular section. When viewed from below, a raised circular ridge 1-1/8 in. (2.86 cm) in diameter and a circular hole 1/2 in. (1.27 cm) in diameter are visible. Equally spaced around the bottom of the resonator and three latching hooks used to discourage disassembly of the horn. The upper section of the resonator consists of a flaring cylindrical section approx 1-3/16 in. (3.02 cm) high and 1/16 in. (0.16 cm) thick. This section is 5/8 in. (1.6 cm) in diameter at the bottom, widening to a diameter of 1-1/4 in. (3.18 cm) at the top.

*Alternate Construction - Same as above except provided with three slots approx 2 mm wide by 14 mm long.

Alternate Plastics - All Component Recognized plastic (QMF22). Monsanto Plastics and Resins Co. 448, Borg Warner Chemicals Cycolac T, General Electric SE100, Monsanto 3350, Hercules Inc. 6523.

Alternate Plastic - Styron 461, manufactured by Dow Chemical Co.

2. Piezo Horn Element - Half-hand brass approx 1-17/32 in. (3.9 cm) in diameter and 0.013 in. (0.03 cm) thick. On one side is a silver electrode approx 15/16 in. (2.4 cm) in diameter overlaid on a ceramic base. Three wires of approx 0.010 in. (0.25 cm) diameter are soldered to the element. The element is secured to the horn resonator with silicon RTV sealant.

3. Chamber Cover - Aluminum, 1-1/16 in. (2.7 cm) in height, approx 1-7/8 in. (4.8 cm) in diameter at the base and 1/32 in. (0.08 cm) thick. Provided with three openings evenly spaced on the top. The openings are 1-1/8 in. (2.9 cm) long and 1/8 in. (0.32 cm) wide. The cover is secured to the printed wiring board by two "L" shaped tabs extending through the board, and one metal screw and nut. Word on chamber top for Model 8201-401 reads "Contains 2 Microcuries Americium 241", wording for Model 8201-601 reads "Contains .9 Microcuries Americium 241".

Alternate Chamber Cover Construction - Cabelec 736 black conductive plastic, 1-1/16 in. (27 mm) high, 1-25/32 in. (45 mm) diameter, 3/32 in. (2.4 mm) thick. Provided with three evenly spaced openings on the top. Opening dimensions are 1-1/16 in. (27 mm) long and 1/8 in. (3.2 mm) wide. The cover is secured to the printed wiring board with two "L" shaped tabs and one metal screw and nut.

4. Test Button - Component Recognized plastic (QMFZ2), Engineering Polymers Noryl SE-90-N, button section cylindrically shaped, 9/16 in. (1.43 cm) diameter, 5/16 in. (0.79 cm) length, and 1/32 in. (0.79 mm) thickness. Words "PUSH TO TEST" molded on top. Provided with a smaller diameter section which extends 3/16 in. (0.48 cm) beyond bottom of button section. Lower section is cylindrical with diameter of 11/64 in. (0.44 cm) with three rectangular flanges running its length. A 19/32 in. (1.5 cm) diameter, 0.012 in. (0.030 mm) thick 18 percent nickel-silver washer is attached to the bottom of the lower section with a 5/16 in. (0.79 cm) long self-tapping screw. Self-restoration provided by a 3/8 in. (0.48 mm) diameter spring wire, installed between button section and top of chamber cover.

* Alternate Plastic - General Electric Noryl SE100.

Alternate - Same as above except self-tapping screw is removed and the washer is held in place by a ultrasonic welding.

Alternate - Same as above except washer is 0.67 in. diameter.

JLP/PEP:jl

5. Electrode - 18 percent nickel-silver alloy (Alloy No. 770), ring shaped with inner diameter of 19/32 in. (1.5 cm), outer diameter of 1-3/16 in. (3.03 cm) and a thickness of 0.012 in. (0.03 cm). Provided with a rectangular tab on one side and a semi-circular tab on the other. The rectangular tab is bent downward at a 90° angle and has a small hole near the end through which Pin 8 of the IC is passed, prior to being soldered or spot welded. The semi-circular tab has a hole which serves as a soldering point for one lead of R1.
6. Electrode Support - Component Recognized plastic (QMF22), Engineering Polymers SE-90-N. Roughly U-shaped, 13/16 in. (2.06 cm) wide, 5/8 in. (1.59 cm) high, and 3/8 in. (0.95 cm) deep.
7. Source Holder - Stainless steel, secured by Item 2 of Fig. 4. Total height is 7/8 in. (2.22 cm), total height above board is 21/32 in. (1.67 cm). Topmost part consists of gold-plated foil containing a 2.0 mCi Americium 241 source; 0.9 mCi in the Model 8201-601. The source is held in place by rolling or pressing the edge of the holder. The rolled edge should be free of cracks. Source holder manufactured by Nuclear Radiations Development. Foil is Type A-001, Nuclear Radiations Development.
Alternate Source - EAD Metallurgical Model AMX 1100, secured to source holder with 5 point star stake.
8. Integrated Circuit - Refer to Fig. 7.
9. Resistor - Refer to Fig. 7.
10. Potenitometer - Refer to Fig. 7.

JLP/PEP:bwm

11. Capacitor - Refer to Fig. 7.
12. Capacitor - Refer to Fig. 7.
13. Tapped Inductor - Not used.
14. Ground Strap - Tin plated copper or tin plated mild steel approx 1/2 in. (1.27 cm) long, 3/16 in. (0.48 cm) wide, and 0.014 in. (0.036 cm) thick. One end is supplied with a hole which corresponds with a hole in the printed wiring board and in the chamber cover. These three holes are aligned and a metal screw and nut used to secure the three sections, ground strap, printed wiring board, and chamber cover.

*Alternate - (Not shown) - Tin plated copper wire, 0.020 in. (0.51 mm) diameter with one end soldered to printed wiring board and the other end secured under the screw used to hold the chamber cover to the printed wiring board.

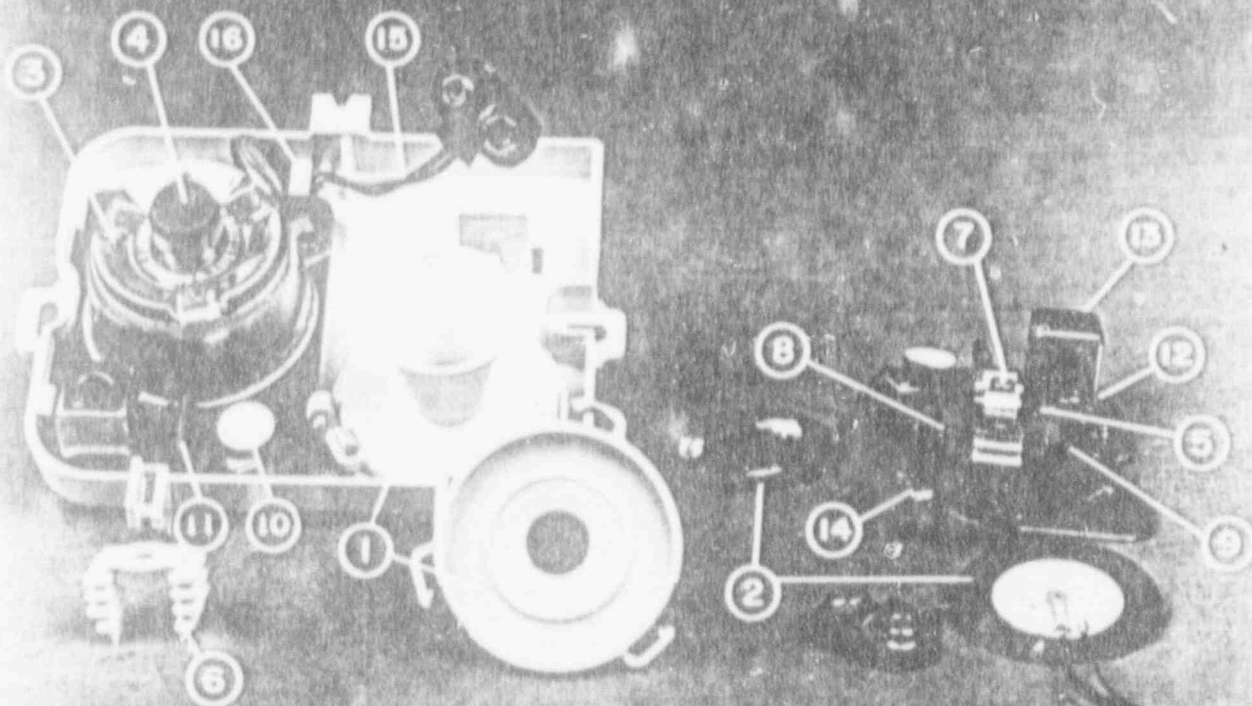
15. Battery Leads - Labeled appliance wiring, No. 22 AWG stranded wire with minimum 1/64 in. thermoplastic insulation. Soldered to printed wiring board and provided with strain relief. (Refer to Fig. 4, Item 16.) Battery clip consists of nonferrous male and female terminals, staked and soldered to fiberboard and then covered with noncomponent recognized nonfunctional thermoplastic. Clip is manufactured by Hung Kee Koug Electronics Co. or Season Electronics.

Alternate - Same as above except manufactured by Leadtorn Ind.

16. Strain Relief - Molded extrusions in base, two narrow parallel ribs, each 7/16 in. (1.11 cm) long, 3/32 in. (0.24 cm) high and separated from each other by 3/8 in. (0.92 cm) extend upward from the bottom of the base while a third extrusion 9/16 in. (1.43 cm) long and 5/32 in. (0.40 cm) wide extends outward from the side of the base. The battery leads pass under this extrusion and over the two ribs.

JLP/PEP:lar

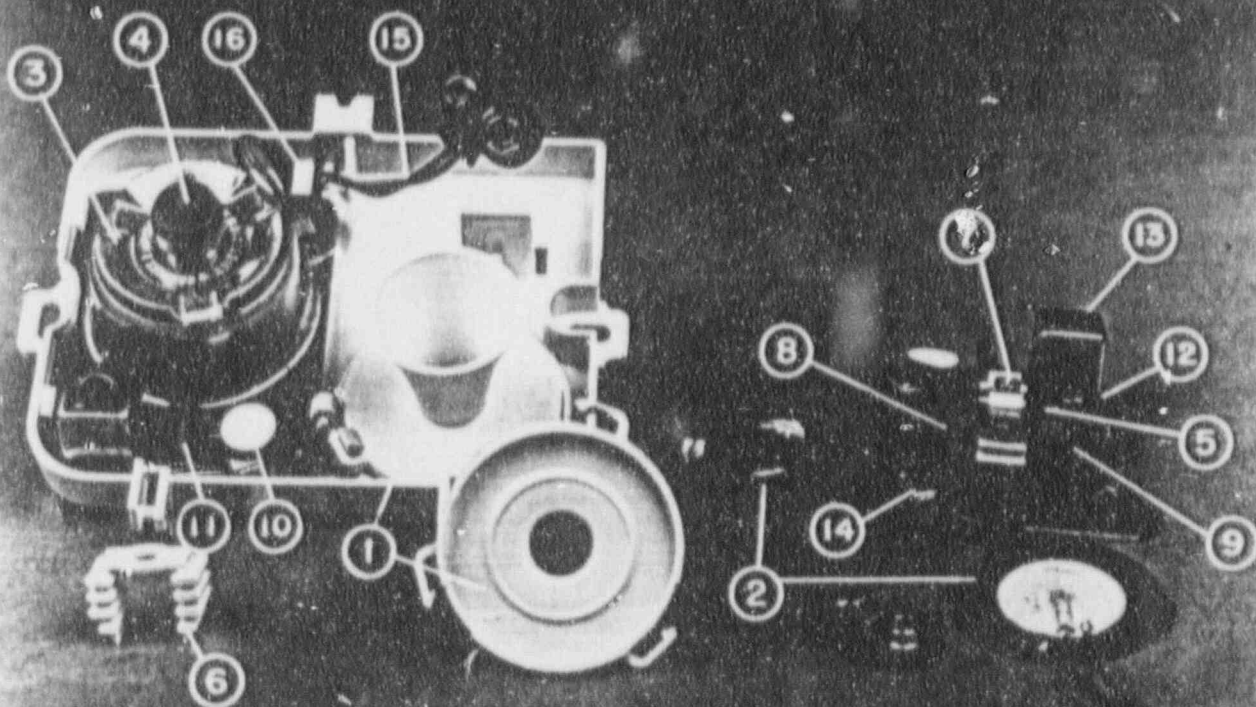
AND REPORT



K 79 - 587

UNILAB, INC.

AND REPORT



K 79-587

UNILAB INC.

MODEL 8201-401C AND SMK-2 - FIG. 5 (K79-249)

*(These models are obsolete.)

1. Printed Wiring Board - Component Recognized (ZPMV2)
manufactured by Chuo Meiban, Type 53HB, 13EHB, 29EHB, 58HB
or 142HB, rated solder bath temperature of 260°C for maximum
of 10 s, or Tai Hong Circuit, Type A4H, 288°C for 12 s.
Roughly rectangular with a length of 2-15/16 in. (7.46 cm)
and width of 2-3/16 in. (5.56 cm). Provided with a 1/8 in.
(0.32 cm) diameter hole near the corner for the source
holder. Near one corner of the board is a 3/16 in.
(0.48 cm) diameter hole which provides room for the shaft of
a metal screw. Board is secured to the base of the detector
with one metal screw and a latching tab extending upwards
from the bottom of the base. The board is formed to allow
it to fit flush with the edge of the base. The board is
prevented from moving upward along this edge by two
rectangular protrusions extending inward from the edge of
the base.
2. Spring Clip - Cadmium plated high carbon spring steel,
soldered to printed wiring board. Approx dimensions
9/16 in. (1.43 cm) long, 5/16 in. (0.79 cm) wide and
0.014 in. (0.036 cm) thick.
3. Tapped Inductor - Not used.

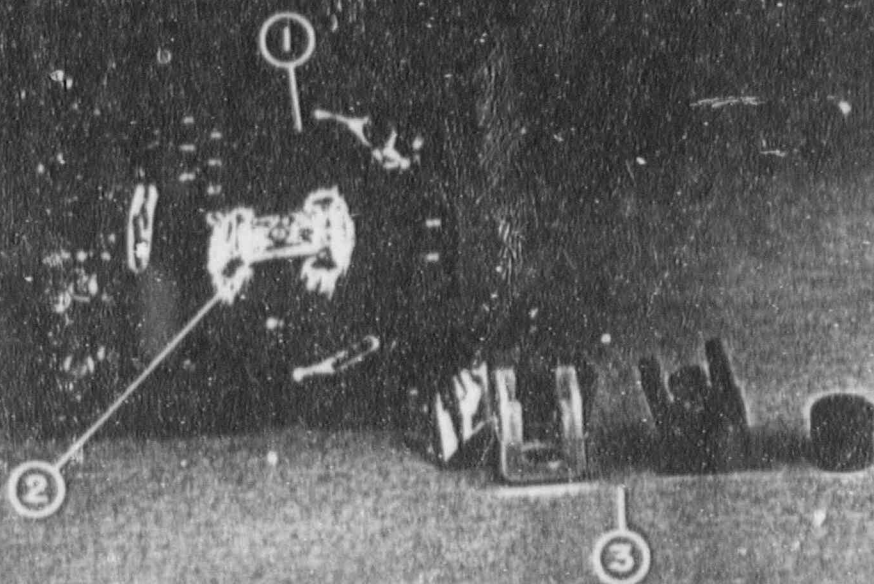
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VOL. I

SEC. 7

FIG. 5

AND REPORT



K79-249

UND LAB INC.

INDUCTOR FOR MODELS 8201-401C AND SMK-2 -
FIG. 6 (K80-2498)

*(These models are obsolete.)

1. Inductor - External dimensions $1/2$ in. (13 mm) high, $13/32$ in. (10 mm) wide and deep. From top to bottom the individual parts are: adjuster, coil frame and case. The adjuster (optional) is hollow with a capped upper end, $11/32$ in. (9 mm) high, $11/32$ in. (9 mm) diameter. The outer edge is threaded to match with the threads on the inside of the case. The adjuster is prevented from turning by a dab of hot wet glue. The coil frame is $3/8$ in. (9.5 mm) high, wide and deep, enclosed by the case.

S 1665

VOL. I

SEC. 7

FIG. 6

AND REPORT

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KBO-2498

MODEL 8201-401C - FIG. 7 (K81-1263)

*(This model is obsolete.)

General - Similar to Model 8201-401 except where noted.

- 1 Components - Refer to ILL. 1F for schematic and ILL. 6B for placement. Refer to ILL. 6D for alternate component placement.

Capacitor C1 - Electrolytic, 3.3, 4.7 or 6.8 μ F, 25 or 50 V dc, 85°C.

Capacitor C2 - Polyester or ceramic, 0.022, 0.033, 0.047, 0.056, 0.068 μ F, 50 or 100 V dc, 85°C.

Capacitor C3 - Electrolytic, 0.33, 0.47, 0.68, 1, 2.2, 3.3 μ F, 25 or 50 V dc, 85°C.

Capacitor C4 - Polyester or ceramic, 4700 pF, 50 or 100 V dc, 85°C.

Capacitor C6 - Polyester or ceramic, 0.001, 0.0033, 0.0056, 0.01, 0.022, 0.033, 0.047, 0.066 μ F, 50 or 100 V dc, 85°C.

Capacitor C7 - (Optional) - Polyester or ceramic, 0.001, 0.0033, 0.0056, 0.01, 0.022, 0.033, 0.047, 0.056 μ F, 25 or 50 V dc, 85°C. Physical location between C3 and R3 on printed wiring board (electrically, across R3).

Resistor R1 - Carbon composition, 0.020, 0.25, 0.030 teraohm, 1/2 or 1/4 W.

Resistor R2 - Carbon film, 300, 330, 360, 390, 430, 470, 510, 560 ohm, 1/2 or 1/4 W, 10 percent.

Resistor R3, R4 - Carbon film, 560K, 680K, 820K, 1M, 1.2M, 1.5M ohm, 1/2 or 1/4 W, 10 percent.

Resistor R5 - (Optional) - Carbon film, 560K, 680K, 820K, 1M, 1.2M, 1.5M ohm, 1/2 or 1/4 W, 10 percent.

Potentiometer VR - Carbon element, 3M ohm, 1/4 W, 20 percent.

Alternate in lieu of VR, carbon film, 1/4 W, 10 percent.

Diode D1 - Silicon IN914, $V_B = 100$, $P_{max} = 500$ mW; or IN4148, $V_B = 100$, $P_{max} = 500$ mW.

Alternate Inductor - 25 mHz, 50 V dc, 30 mA.

- * Integrated circuit Q, Siliconix WL025 or WL027, marked
 - * with "WL025" or "WL027" Siliconix logo and four digit date code. (For further details, refer to File S1665(Sp), Vols. 7 and 8).
2. Batteries - Unlisted components, Duracell MN1604 and Everready 216. Refer to File S2329, Vol. 1 for further information.
 3. Smoke Entry Position - When running sensitivity trials, the detector should be oriented such that smoke box airflow is in this direction.

DMG/PEP:jlw

S 1665

VOL. 1

SEC. 7

FIG. 7

AND REPORT

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KBI-1265

MODELS SMK-2 AND SMK-2/MI - FIG. 8 (K81-3987)

*(These models are obsolete.)

General - Similar to Models 8201-401C and 8201-401C/MI except where noted.

1. Cover and Base Plastic - Component Recognized plastic (QMFZ2), Monsanto Type 3350.
2. Mounting Block - Component Recognized plastic (QMFZ2), Nylatron GS, manufactured by the Polymer Corp., or Delrin 500, manufactured by E.I. du Pont de Nemours & Co. Approx overall dimensions 3/4 by 5/8 by 1/2 in. (10 by 15 by 13 mm). Secured to base by screws.

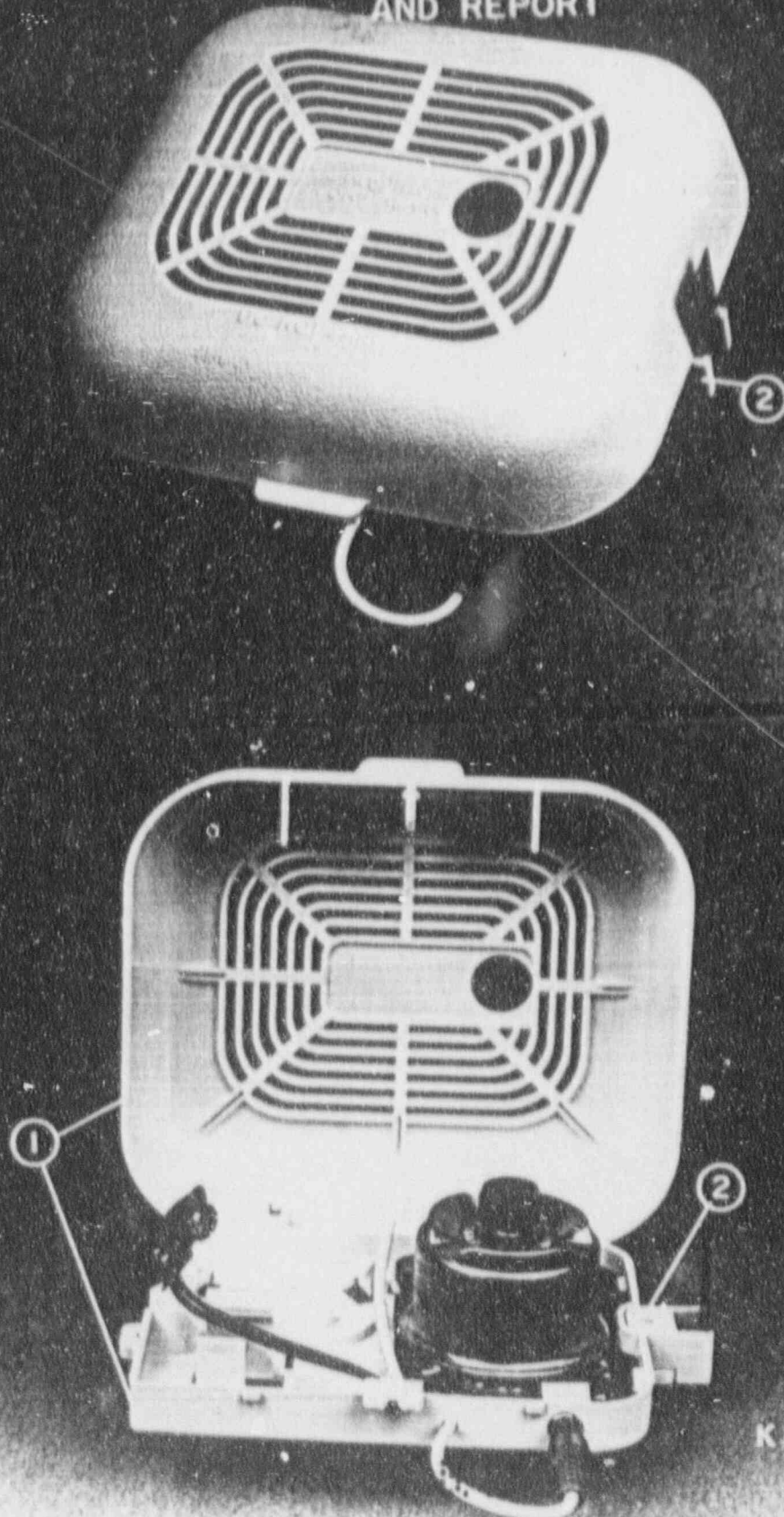
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VOL. 1

AND REPORT

SEC. 7

FIG. 8



K81-3987

MODEL SMK-2 - FIG. 9 (K81-3986)

*(This model is obsolete.)

1. Bracket - Stainless steel, "L"-shaped, overall dimensions $3\frac{5}{8}$ by $1\frac{1}{4}$ in. (92 by 32 mm) long and 0.015 in. (0.38 mm) thick. Slides into slots in mounting block.
2. Jack Plug and Socket - Plug composed of nickel or tin plated brass with vinyl chloride retaining cord. The cord is approx $\frac{3}{32}$ in. (2.4 mm) in diameter and does not include any wire. The socket has a nickel or tin plated brass bushing with silver or tin plated terminals. The terminal block is Noryl plastic approx $\frac{13}{32}$ by $\frac{11}{32}$ by $\frac{12}{32}$ in. (10 by 8.7 by 9.5 mm). Two wires [Labeled AWM No. 22 AWG stranded wire with minimum $\frac{1}{64}$ in. (0.40 mm) insulation] are soldered to the external terminals of the socket. One wire is one of the battery leads while the other is soldered to the printed wiring board at its other end.

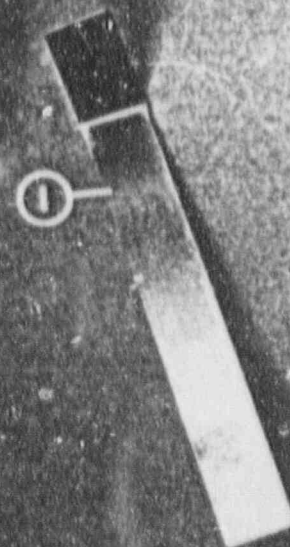
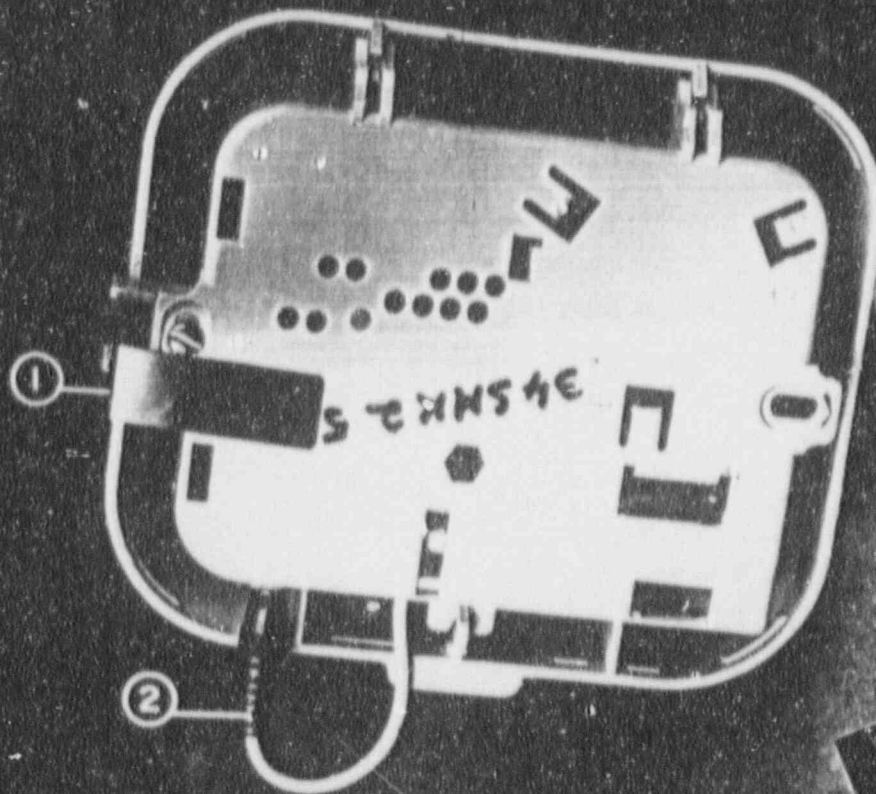
S 1665

VOL. I

SEC. 7

FIG. 9

AND REPORT



K 81-3986

WELLS INC.

MODEL 8201-401C/MI - FIG. 10 (K81-4890)

*(This model is obsolete.)

General - Similar to Model 8201-401C except where indicated otherwise below.

1. Ionization Chamber - (Shown without chamber cover) - See ILL. 7 for location of components.
2. Top Electrode - 18 percent nickel-silver alloy ring shaped with inner diameter of 0.40 in. (10 mm), outer diameter of 1.19 in. (30 mm) and a thickness of 0.012 in. (0.3 mm). Provided with a rectangular tab on one side which is bent down at a 90° angle and has a hole or slot near the end through which Pin 11 of the IC is passed prior to being soldered, or spot welded.

Bottom Electrode - 303 stainless steel, roughly circular with a diameter of 1.19 in. (30 mm) and thickness of 0.014 in. (0.36 mm). Provided with three legs, 0.4 in. (10 mm) long. The legs are soldered to the printed wiring board. The ionization source is crimped into the center of this electrode.

Electrode Insulating Support - Component Recognized plastic (QMF22) Engineering Polymers Noryl SE-90, Dow Chemical Co. 492U, Borg-Warner Chemicals, Cycolac T7 Gulf Oil Chemicals 5161 and 6560, Monsanto Plastics and Resins 3350 and 448, General Electric Noryl SE-100, Hercules 6523. Roughly ring-shaped, 1.6 in. (41 mm) outer diameter, 1.2 in. (30 mm) inner diameter and 0.3 in. (7.6 mm) thick. It has six snaps, three for holding the top electrode and three for holding the bottom electrode.

Source and Holder - Holder is 303 stainless steel, roughly washer shaped with an outer diameter of 0.25 in. (6.4 mm) and is crimped onto the bottom electrode. The radioactive foil is a Type AMX 1100, manufactured by Nuclear Radiation Developments, and is held crimped on the 0.08 in. (2 mm) diameter hole provided in the bottom electrode. The radioactive material is 0.9 μ Ci of Americium 241.

2. Components - Similar to Model 8201-401C except Resistor R1 is not used. Refer to ILL. 6E or 6C for placement diagram and ILL. 1G schematic diagram.

R3 Alternate Values - 47K, 56K, 82K, 100K, 220K, 330K, 470K, 560K.

IC Pin 1 may or may not be grounded.

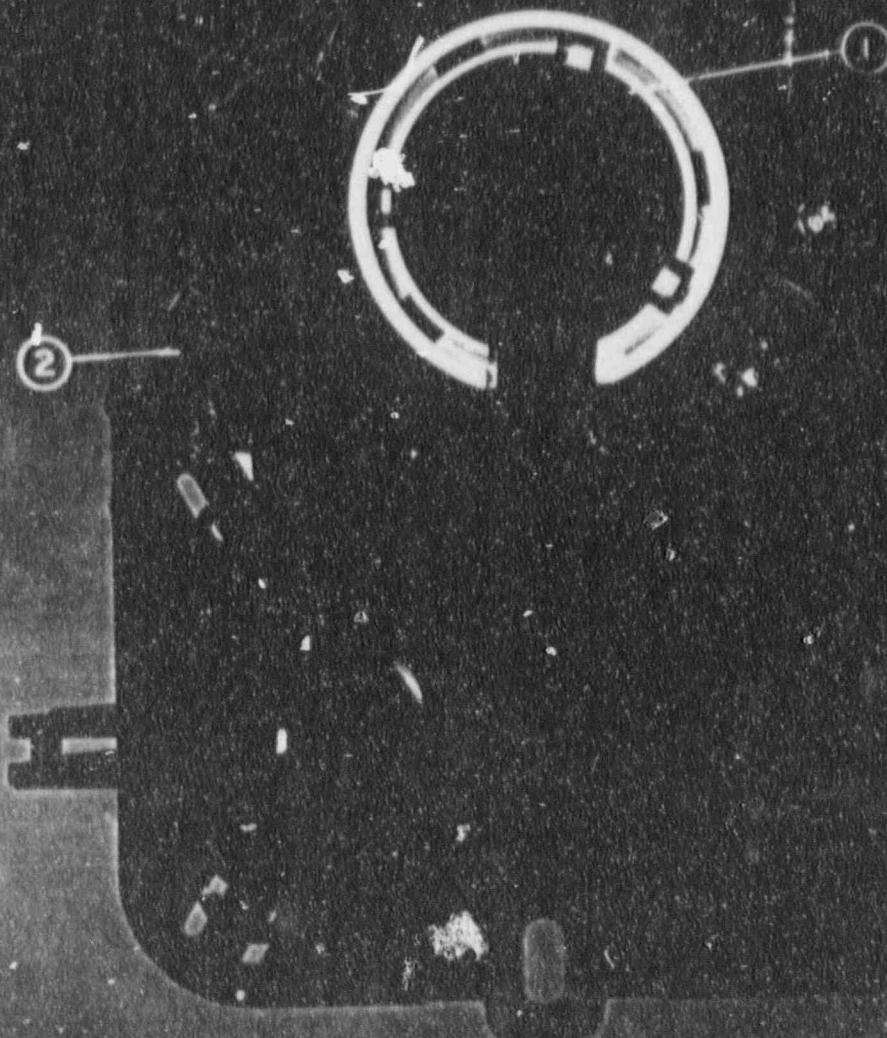
S 1665

VOL. I

SEC. 7

FIG. 9

AND REPORT



UNIK LAB. INC.

X 81-4520

SMK-6/M2 - FIG. 11 (K83-524)

* General - Similar to the 8201-401C/MI except where indicated. Also represents the Model SMK-6/M3 where indicated.

- * 1. SMK-6/M2 Components - Refer to ILL. 12 for description. ILL. 13 for layout, and ILL. 14 for schematic. Refer to ILLS. 17A-19 for alternate horn driver circuit.

R3 Alternate Values - 47K, 56K, 82K, 100K, 220K, 330K, 470K, 560K.

* SMK-6/M3 Components - Refer to ILL. 23 for description, ILL. 24 for layout and ILL. 25 for schematic.

IC Pin 1 may or may not be grounded.

This model utilizes one of the following batteries:

Duracell MN1604
Eveready 216
Gold Peak 1604P
Gold Peak 1604S

For description of the batteries, please refer to File S2329, Vol. 1.

2. Least Favorable Smoke Entry Direction - When conducting sensitivity tests, the detector should be oriented such that the smoke box air flow is directed as shown, into the corner opposite the horn.

DG/PEP:law

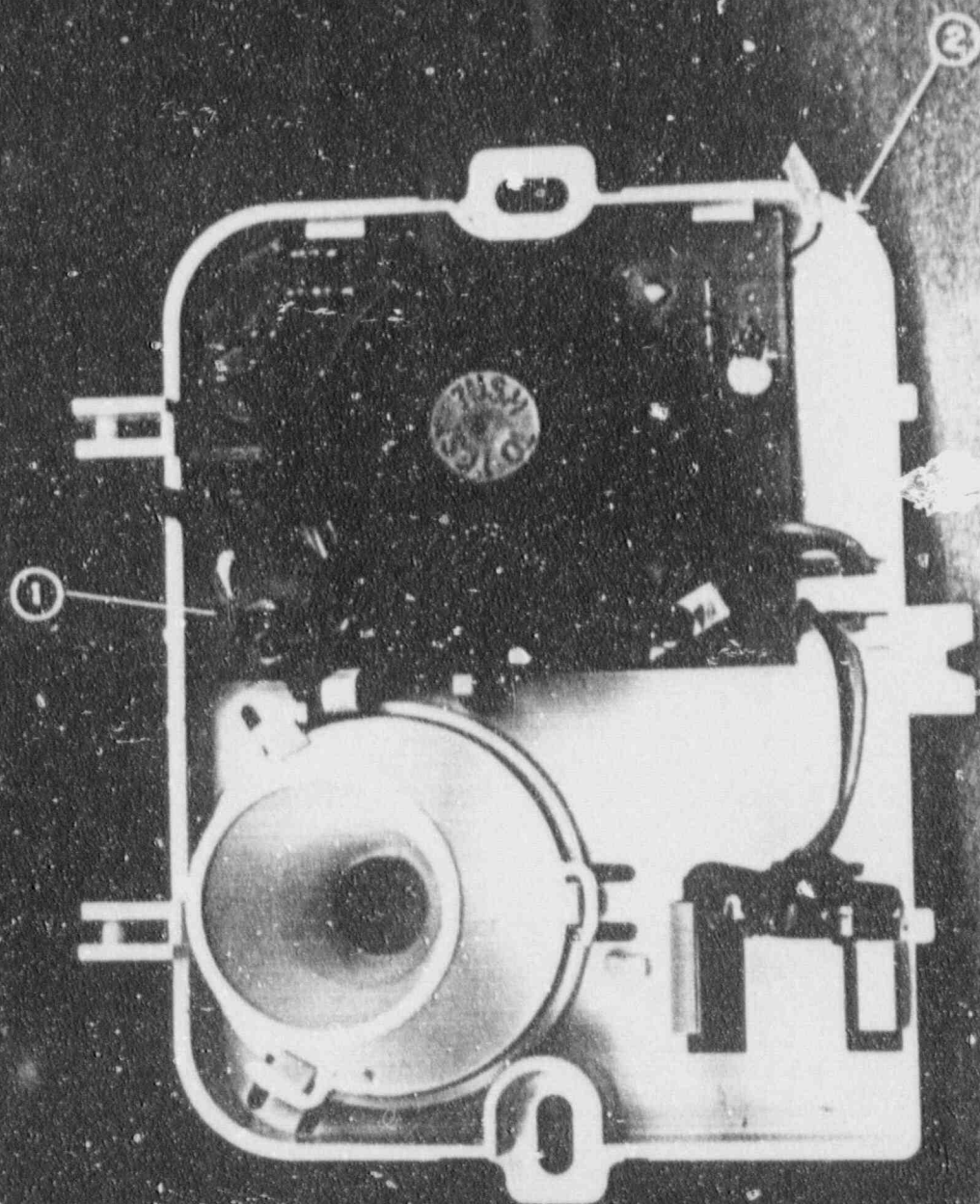
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VOL. I

AND REPORT

SEC. 7

FIG. II



K8-4-52-4

ALTERNATE TEST FEATURE MECHANISM FOR SMK-6/M2
*AND SMK-6MI - FIG. 12 (K84-3794)

General - The models employing this alternate construction are similar to the original versions except where indicated below.

1. Test Feature Mechanism - Consists of a test button, switch blade, and switch blade holder. The test button and switch blade holder are constructed of Component Recognized plastic (QMF22), General Electric Noryl SE-100, Monsanto 448, Borg-Warner Cycolac T, Monsanto 3350, Hercules 6523, or Dow Styron 461. The test button has approximate overall dimensions of 14 mm diameter and 3.2 mm thick (9/16 by 1/8 in.). The switch blade holder is approx 13 mm long and wide and 2 mm thick (1/2 by 1/2 by 5/64 in.). The switch blade holder is a nickel-silver alloy approx 35 mm long, 4.8 mm wide, and 0.3 mm thick (1-3/8 by 3/16 by 0.012 in.). A length of minimum No. 28 AWG wire with minimum 4 mm (1/64 in.) thick insulation has one end soldered to the end of the switch blade and the other end soldered to the printed wiring board. Before being soldered to the switch blade, the wire is inserted into a hole in the blade and bent over to provide mechanical security. The test button is heat staked to the switch blade and that assembly is in turn heat staked to the switch blade support.
2. Chamber Cover - Similar to Fig. 4, Item 3 except has no hole in the top center.
3. *Components - Similar to original version of SMK-6/M2 (refer to Fig. 11) except where noted below. Refer to ILL. 15A for component placement and ILL. 16 for schematic.

Resistors R6 and R7: Carbon film, 0.25 or 0.50 W, 10 percent, may have values of 560K, 680K, 1.0M, 1.2M, 1.5M, 1.8M, 2.0M, 2.2M, 2.7M.

Capacitor C8: (Optional) - Polyester or ceramic, 50 V, 85°C, may have values of 10,000, 1000, 3300, 5600, 8200, 22,000, 33,000 or 47,000 pF.

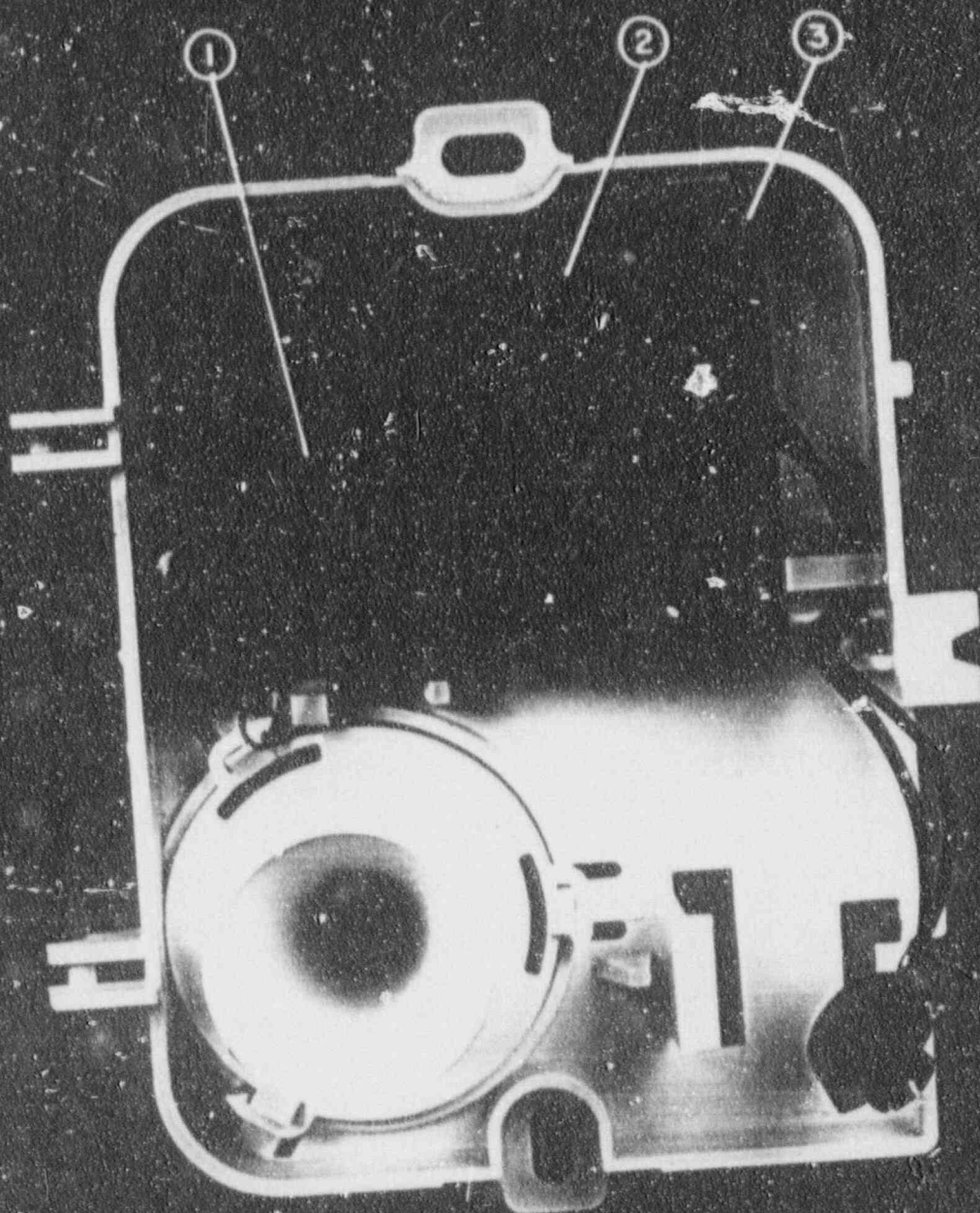
S 1665

VOL. I

SEC. 7

FIG. 12

AND REPORT

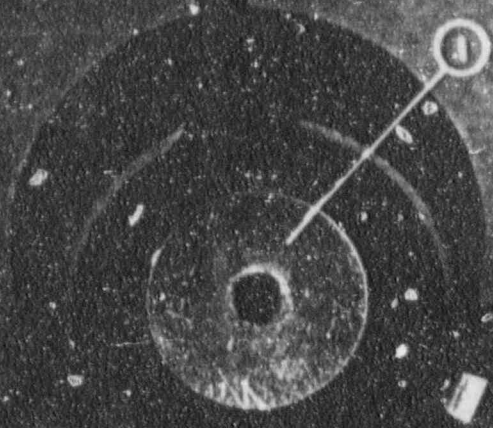


K84-3794

WILSON LAB. INC.

ALTERNATE TEST FEATURE MECHANISM FOR SMK-6/MZ
*AND SMK-6MI - FIG. 13 (K85-1964)

1. Metal Washer - (Optional) - Stainless steel or 18 percent nickel-silver. Approx overall dimensions, 22 mm diameter, 0.25 to 0.36 mm thick (7/8 by 0.010 to 0.014 in.). Heat staked to the chamber cover with a plastic boss passed through a 2.5 mm (0.1 in.) hole in the center of the washer.



SECRET

*MODEL SMK SERIES SMOKE CHAMBER CONSTRUCTION -
FIG. 14 (K86-523)

General - This construction will be effective as of March 3, 1986. All other chamber constructions will be obsolete beyond this date.

1. Chamber Cover - Cabelec 736 black conductive plastic, 1-1/8 in. (2.9 cm) high, 1-25/32 in. (4.5 cm) diameter, 3/32 in. (2.4 mm) thick. Provided with fifteen evenly spaced sets of openings on top (see ILL. 26). Each set contains fourteen 15/64 by 3/64 in. (6 by 1.2 mm) openings. Secured to printed wiring board with two L-shaped tabs and one metal screw and nut.

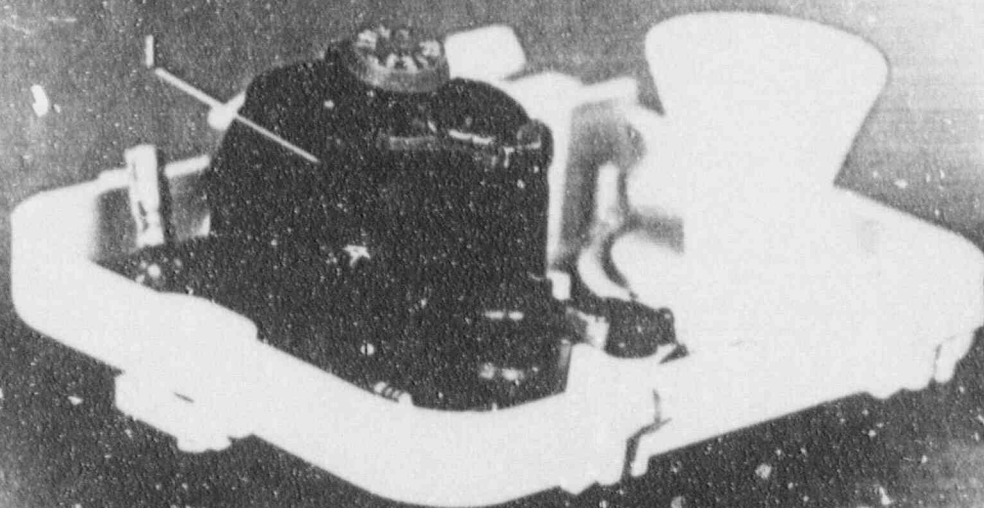
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VOL.1

AND REPORT

SEC.7

FIG.14



UNO LAB. INC.

ALTERNATE TEST FEATURE WITH OPTIONAL LET -
FIG. 15 (K86-4932)

* General - This feature may be employed on Models SMK-6/M1, *SMK-6/M2, SMK-6/M3, SMK-6D/M1, SMK-6D/M2 and SMK-6D/M3, with or without a LED. R25 has a value of 330 ohms with the LED. The combination is replaced by R1, 470 ohms without the LED. See ILLS. 27 and 28 for layout and schematic.

1. Test Button - Material, General Electric Lexan-141, -141R, or Noryl-SE90, -SE100. 5/8 in. (16 mm) diameter with the words "PUSH TO TEST" raised on top with 3/16 in. (4.8 mm) deep, by 1/8 in. (3.2 mm) wide barbed latch to keep button in cover assembly. Equipped with 3/4 in. (19 mm) long, 3/16 in. (4.8 mm) diameter light pipe. A 3/4 in. (19 mm) long, 1/8 in. (3.2 mm) wide rectangular piece extending 3/8 in. (9.5 mm) down, and 1/16 in. (1.6 mm) out from the light pipe used to actuate the test switch.

Alternate - Tyril 790 clear.

Alternate - Lexan 940 manufactured by General Electric. Component Recognized plastic (QMFZ2).

2. LED - Type LTL-4224 manufactured by Litton.
3. Test Switch - Two pieces: 1) blade: 18 percent Ni-Ag alloy (No. 770). 2) contact: jump wire J2, tin plated copper 0.02 in. (0.51 mm) diameter. See Page 11, Item 14.

MODELS SMK-20 AND SMK-30 -
FIG. 16 (C87-13002)

General - The Model SMK-20 is identical to the Model SMK-6/M2 except it employs a different enclosure and a different component layout. The Model SMK-30 is similar to the Model SMK-20 except it incorporates additional circuitry for a "silence" feature.

1. Cover - Component Recognized plastic (QMF22) manufactured by Dow Chemical Co. Ltd., Type Dow 492. Approximate overall dimensions 14 cm long, 11-1/2 cm wide, 2 mm thick (5-1/2 by 4-1/2 by 5/64 in.). Provided with two female snap tabs allowing the cover to hinge away from the base and one latching tab to secure the cover. The top has 16 openings approx 3 mm wide (7/64 in.) with lengths ranging from 10 cm (4 in.) to 35 mm (1-3/8 in.). The openings are separated by a grillwork of 16 rectangular or sections each approx 3 mm thick (7/64 in.) and 14 cm long (5-1/2 in.).

From the center of the cover there is a 25 mm (1 in.) wide by 74 mm (2.9 in.) long strap-like section extending to the edge between the two female snaps. This section is provided with a 19 mm (47/64 in.) diameter hole in approximately the center of the cover for the test button.

The SMK-30 cover also has a 37 mm square (1-7/16 in.) section near one corner with the word "Silencer" on it. Directly under this section is a plastic cylinder approx 33 mm (1-5/16 in.) molded into the inside of the cover.

Alternate Plastics - Component Recognized plastic (QMF22).

Borg Warner Cycolac T
Dow Chemical 492U
Gulf Oil 5151, 6560
Monsanto Plastics 3350
Hercules 6523

2. Test Button - Material, General Electric Lexan-141, -141R, or Noryl-SE90, -SE100. 5/8 in. (16 mm) diameter with the word "TEST" raised on top with 3/16 in. (4.8 mm) deep, by 1/8 in. (3.2 mm) wide barbed latch to keep button in cover assembly. Equipped with 3/4 in. (19 mm) long, 3/16 in. (4.8 mm) diameter light pipe. A 3/4 in. (19 mm) long, 1/8 in. (3.2 mm) wide rectangular piece extending 3/8 in. (9.5 mm) down, and 1/16 in. (1.6 mm) out from the light pipe used to actuate the test switch.

Alternate - Tyril 790 clear.

3. Least Favorable Smoke Entry Direction - When conducting sensitivity tests, the detector should be oriented such that the smoke box airflow is directed into the side of the unit between the horn and battery.

JLP/PEP:rb



MODELS SMK-20 AND SMK-30 -
FIG. 17 (C87-13003)

General - Both models are similar to the SMK-6/M2 and to each other except where noted below.

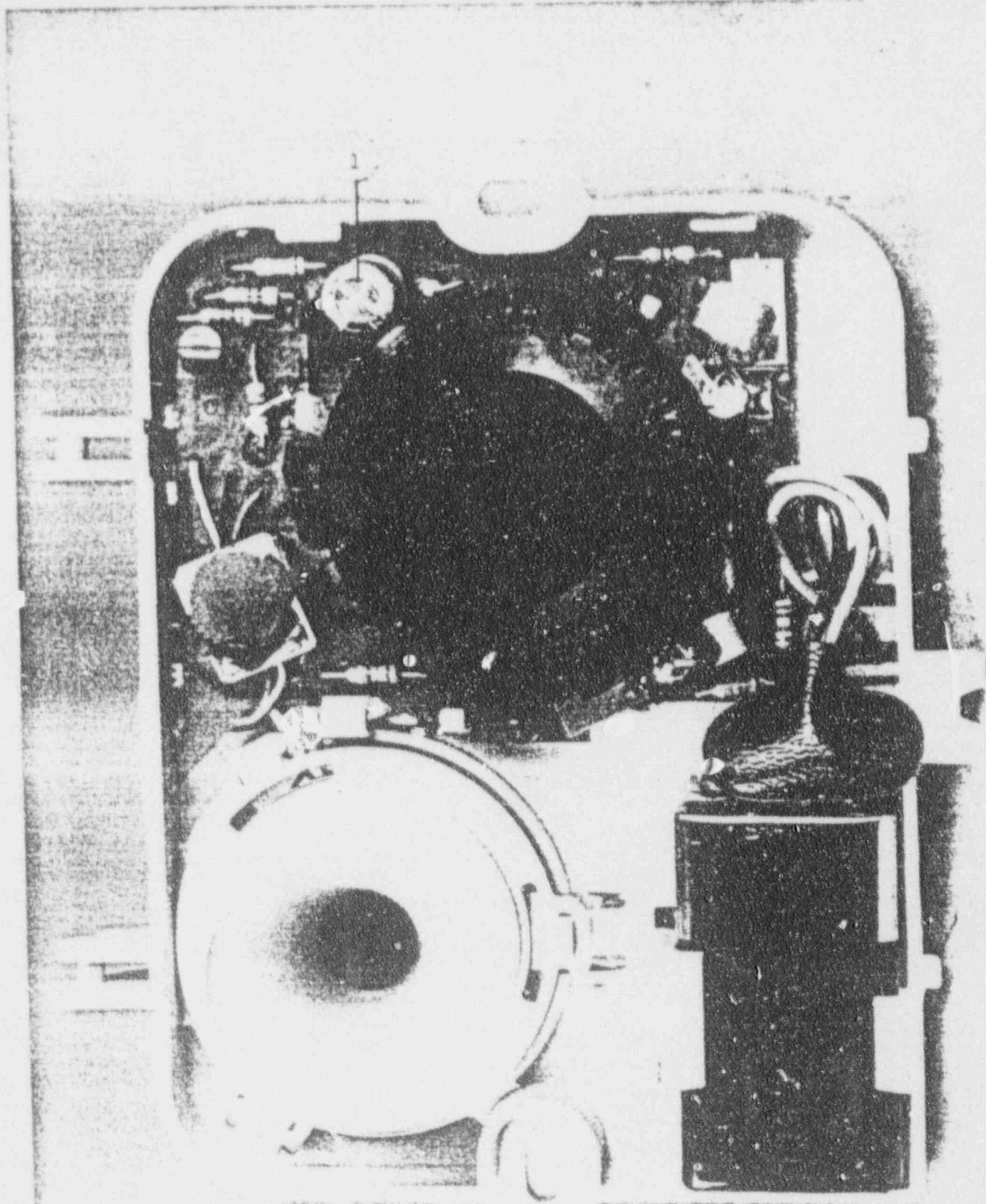
1. Components -

SMK-20. Refer to SMK-6/M2 and to ILL. 36 for placement.

SMK-30. Refer to ILL. 35 for description of components different from SMK-6/M2 and SMK-20, ILL. 37 for placement, and to ILL. 38 for schematic.

JLP/PEP:rb

AND REPORT



C87-13003

R1201020

LICENSING TRACKING SYSTEM

DATE: 02/17/91
PAGE: 1

LTS WORKSHEET

DOCKET NO : 03021087 LICENSE NO : 06-20704-02E STATUS: 0
MAIL CONTROL: 110283 RECEIPT DATE : 890215 ACTION TYPE: *X3*
FED. GOVT : N INST. CODE : 20704 LICENSE REGION: 0
ISSUE DATE: *92/11/9* ~~841031~~ ORIGINAL DATE: *84/10/31* EXPIRATION DATE: 19891031

NAME : BLACK & DECKER (U.S.) INC.

DEPT/BUREAU: ~~HOUSEWARES GROUP~~

BUILDING : -----

STREET : 6 ARMSTRONG ROAD

CITY : SHELTON

STATE: CT

ZIP: 06484-4797

CONTACT PERSON: ~~MARY LOU MEIBS~~PHONE: *(203) 926-3178* ~~3178~~*Lee Crawford*

PRIMARY PGM CODE : 03255 SECONDARY PGM CODES: -----

INSPECTION REGION: 1 PRIORITY CODE: 5 INSPECTION CATEGORY: E

RADIATION SAFETY OFFICER: *MARY LOU MEIBS* -----

STATES WHERE USE IS AUTHORIZED: 1 0 - ALL LISTED STATES
1 - SAME AS STATE IN ADDRESS
2 - ALL STATES
3 - NON-AGREEMENT STATES

AUTHORIZED STATES: ----- (USE ONLY IF ABOVE IS ZERO)

REPORTING IDENTIFICATION SYMBOL: -----

APPROVAL FOR: REDISTRIBUTION: N STORAGE ONLY: N
TEMPORARY JOB SITES: N INCINERATION: N
BURIAL: N

EXEMPTIONS: (1) ----- (2) -----

11/20/92 CP



POSSESSION LIMIT INFORMATION

PAGE: 1

MATERIAL TYPE : NPA FORM CODE: NPA AGGREGATE CODE: NPA
MODEL NUMBER : -----
DESCRIPTION : -----
TOTAL QUANTITY : 000000.000000000 UNIT: ---
OTHER : - # SOURCES: ---

MATERIAL TYPE : ----- FORM CODE: --- AGGREGATE CODE: ---
MODEL NUMBER : -----
DESCRIPTION : -----
TOTAL QUANTITY : ----- UNIT: ---
OTHER : - # SOURCES: ---

MATERIAL TYPE : ----- FORM CODE: --- AGGREGATE CODE: ---
MODEL NUMBER : -----
DESCRIPTION : -----
TOTAL QUANTITY : ----- UNIT: ---
OTHER : - # SOURCES: ---

MATERIAL TYPE : ----- FORM CODE: --- AGGREGATE CODE: ---
MODEL NUMBER : -----
DESCRIPTION : -----
TOTAL QUANTITY : ----- UNIT: ---
OTHER : - # SOURCES: ---

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DESCRIPTION : -----
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OTHER : - # SOURCES: ---

MATERIAL TYPE : ----- FORM CODE: --- AGGREGATE CODE: ---
MODEL NUMBER : -----
DESCRIPTION : -----
TOTAL QUANTITY : ----- UNIT: ---
OTHER : - # SOURCES: ---

INDIVIDUAL USERS

PAGE:

NAME

AUTHORIZATION

ADDRESS WHERE MATERIAL IS USED OR POSSESSED

BUILDING: -----
ROOM: -----
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STREET: -----
CITY: -----
STATE: -----

BETWEEN:

LICENSEE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS

PROGRAM CODE: 03255
STATUS CODE: 0
FEE CATEGORY: 3H
EXP. DATE: 19891031
FEE COMMENTS:

LICENSEE FEE TRANSMITTAL

A. REGION *HQS*

1. APPLICATION ATTACHED

APPLICANT/LICENSEE: BLACK & DECKER (U.S.) INC.
RECEIVED DATE: 890216
DOCKET NO.: 3021087
CONTROL NO.: 110283
LICENSE NO.: 06-20704-025
ACTION TYPE: ~~AMENDMENT~~ *Renewal - per Mike Kamastra*

changed in LTS
4/26/89

2. FEE ATTACHED

AMOUNT: -----
CHECK NO.: -----

3. COMMENTS

#10 SSV D required - but Administrative only
per Steve - sheet attached

SIGNED -----
DATE -----

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED *✓*)

1. FEE CATEGORY AND AMOUNT: *3H* *\$ 230*

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:

AMENDMENT -----
RENEWAL -----
LICENSE -----

3. OTHER -----

No SSV D review -
sheet attached.

SIGNED *S. Kimbrey* -----
DATE *4/23/89* -----

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS

PROGRAM CODE: 03255
STATUS CODE: 0
EE CATEGORY: 3H
EXP. DATE: 19891031
FEE COMMENTS:

LICENSE FEE TRANSMITTAL

A. REGION *HQS*

1. APPLICATION ATTACHED

APPLICANT/LICENSEE: BLACK & DECKER (U.S.) INC.
RECEIVED DATE: 890216
DOCKET NO.: 3021087
CONTROL NO.: 110283
LICENSE NO.: 06-20704-02E
ACTION TYPE: ~~AMENDMENT~~ *Renewal*

*per Mike Kamastera
changed in LTS
m 4/26/89*

2. FEE ATTACHED

AMOUNT:
CHECK NO.:

3. COMMENTS

*#55vD required - but Administrative only
per Steve - sheet attached*

SIGNED
DATE

6. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED *✓*)

1. FEE CATEGORY AND AMOUNT: *3H* ** 230*

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:

AMENDMENT
RENEWAL
LICENSE

3. OTHER

*no 55vD review -
sheet attached.*

SIGNED
DATE *4/25/89*

R1201020

LICENSING TRACKING SYSTEM

DATE: 02/15
PAGE: 1

LTS WORKSHEET

DOCKET NO : 03021087 LICENSE NO : 06-20704-02E STATUS: 0
MAIL CONTROL: 110283 RECEIPT DATE : 890215 ACTION TYPE: *X3*
FED. GOVT : N INST. CODE : 20704 LICENSE REGION: 0
ISSUE DATE: *92/1/19* ~~144031~~ ORIGINAL DATE: *84/10/31* EXPIRATION DATE: 19891031

NAME : BLACK & DECKER (U.S.) INC.

DEPT/BUREAU: ~~HOUSEWARES GROUP~~

BUILDING 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 1045 1046 1047 1048 1049 1050 1051 1052 1053 1054 1055 1056 1057 1058 1059 1060 1061 1062 1063 1064 1065 1066 1067 1068 1069 1070 1071 1072 1073 1074 1075 1076 1077 1078 1079 1080 1081 1082 1083 1084 1085 1086 1087 1088 1089 1090 1091 1092 1093 1094 1095 1096 1097 109

STREET : 6 ARMSTRONG ROAD

CITY : SHELTON

STATE: CT

ZIP: 06484-4797

CONTACT PERSON: ~~MARY LOU NEIGS~~

PHONE: (203) 926-~~3112~~³¹¹⁰

Lee Crawford

PRIMA' PGM CODE : 03255 SECONDARY PGM CODES: _____

INSPECTION REGION: 1 PRIORITY CODE: 5 INSPECTION CATEGORY: E

RADIATION SAFETY OFFICER: MARY LOU MEIBS

[illegible]

AUTHORIZED STATES: _____ (USE ONLY IF ABOVE IS ZEE)

REPORTING IDENTIFICATION SYMBOL: _____

APPROVAL FOR: REGISTRATION: N STORAGE ONLY: N
TEMPORARY JOB SITES: N INCINERATION: N
BURIAL: N

EXEMPTIONS: (1) _____ (2) _____

11/20/92 CB

POSSESSION LIMIT INFORMATION

PAGE

MATERIAL TYPE : NPA FORM CODE: NPA AGGREGATE CODE: NPA
MODEL NUMBER : -----
DESCRIPTION : -----
TOTAL QUANTITY : 000000.000000000 UNIT: ---
OTHER : - # SOURCES: ---

MATERIAL TYPE : ----- FORM CODE: --- AGGREGATE CODE: ---
MODEL NUMBER : -----
DESCRIPTION : -----
TOTAL QUANTITY : ----- UNIT: ---
OTHER : - # SOURCES: ---

MATERIAL TYPE : ----- FORM CODE: --- AGGREGATE CODE: ---
MODEL NUMBER : -----
DESCRIPTION : -----
TOTAL QUANTITY : ----- UNIT: ---
OTHER : - # SOURCES: ---

MATERIAL TYPE : ----- FORM CODE: --- AGGREGATE CODE: ---
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MATERIAL TYPE : ----- FORM CODE: --- AGGREGATE CODE: ---
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OTHER : - # SOURCES: ---

NAME

AUTHORIZATION

ADDRESS WHERE MATERIAL IS USED OR POSSESSED

BUILDING: -----
ROOM: -----
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(FOR LFMS USE)
INFORMATION FROM LTS

```

: PROGRAM CODE: 03255
: STATUS CODE: 0
: FEE CATEGORY: 3H
: EXP. DATE: 19891031
: FEE COMMENTS:

```

A. REGION

APPLICANT: PERMENSEE BLACK & DECKER (U.S.) INC.
RECEIVED DATE: 890216
DOCKET NO.: 3021067
CONTROL NO.: 110223
LICENSE NO.: 06-20704-02E
ACTION TYPE: ~~AMENDMENT~~ *Renewal - 2e*

AMOUNT: _____
CHECK NO. : _____

COMMENTS

~~PER~~ S S & D required - but Administrative only
per Stone - sheet attached

SIGNED _____
DATE _____

1. FEE CATEGORY AND AMOUNT: 3H 2.30

AMENDMENT
RENEWAL
LICENSE

SIGNED
DATE

no SSD review -
sheet attached