



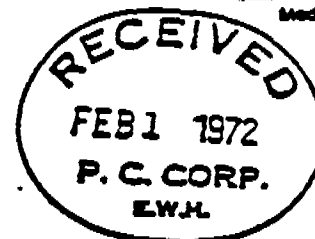
PPG INDUSTRIES, INC./ONE GATEWAY CENTER/PITTSBURGH, PENNSYLVANIA 15222/AREA 412/434-3846

January 31, 1972

LEE B. GRANT, M.D.
Medical Director

TO: MR. CARL P. OLM, PLANT MANAGER
PITTSBURGH CORNING - PORT ALLEGANY

MR. CHARLES E. VAN HORNE, PLANT MANAGER
PITTSBURGH CORNING - TYLER



SUBJECT: EMERGENCY STANDARD FOR ASBESTOS - A POWERED FILTER POSITIVE
PRESSURE RESPIRATOR

I have further information on the subject respirator required for a
job where the average reading is above 25 fibers of asbestos/cc.
The U. S. Bureau of Mines referred me to Personal Environment Systems,
Inc. Attached are the following:

1. Letter from U. S. Bureau of Mines
2. Page 5 of IC8509, U. S. Bureau of Mines
3. Letter from Personal Environment Systems
4. Price List
5. Page 7, 9, & 11 of June, 1970, Catalog
6. Brochure on White Capsul II.

You will notice from attachments #2 and #5 that the only approved
respirators require an electrical connection to a source of power.
Attachment #6 shows White Capsul II, a battery-operated unit, but it
has not yet been approved. The latter type may be the only type that
will be feasible for your use.

I received a call from Renehan-Mahoney Associates who will be in the
Pittsburgh area to demonstrate these respirators in February. I will
keep you advised.

Very truly yours,

1 BB 0022676 1

Lee B. Grant, M.D.
Medical Director

LBG:c

Attachments

cc: E. W. Holman

G. S. Gregory

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United States Department of the Interior

BUREAU OF MINES

4800 FORBES AVENUE

PITTSBURGH, PENNSYLVANIA 15213

H & S Technical Support Center

Approval and Testing

December 28, 1971

Dr. Lee B. Grant
Medical Director
PPG Industries
One Gateway Center
Pittsburgh, Pennsylvania 15222

Dear Dr. Grant:

With reference to your letter of December 20, 1971, concerning a
"powered filter positive pressure respirator:"

These devices are so called "powered air-purifying respirators,"
consisting of a filter, through which air is drawn by a blower and
then conducted to a facepiece or hood through a breathing tube.
The Bureau has approved only one such respirator, Approval number 21B-104,
listed on page 5 of our publication, IC 8509, enclosed.

Sincerely yours,

Robert H. Schutz

Robert H. Schutz
Supervisory Research Chemist
Approval and Testing
Pittsburgh Technical Support Group

Enclosure

*Forward
up to
Bureau to Manufacturing*

BB 0022677

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TABLE 4. - Dust respirators for respiratory protection
against coal dust

Respirator	Approval number	Protection afforded in addition to dusts	
		Mists	Fumes
AO R5056 and R5056.....	21B-63	x	x
Safeline 5241.....	21B-63	x	x
M-S-A [®] 56431.....	21B-69	x	x
AO R2090.....	21B-72	x	
Pulmosan C-164.....	21B-73	x	
AO R5090.....	21B-74	x	
Safeline 5265.....	21B-74	x	
Pulmosan L-801.....	21B-76	x	
Casco 507.....	21B-77	x	
AO R6030.....	21B-78	x	
Safeline 5441.....	21B-81	x	
AO R9166.....	21B-84	x	x
Safeline 5701.....	21B-84	x	x
AO R3030.....	21B-85	x	
AO R8156.....	21B-87	x	x
AO R8100.....	21B-88	x	
3M 8700.....	21B-91	x	
Safeline 5550.....	21B-92	x	
Safeline 5556.....	21B-93	x	
Willson WHGW-DFM-THGW-DFM.....	21B-96	x	x
M-S-A [®] 96000.....	21B-97	x	
Scott/Acme 659-1.....	21B-99	x	x
Scott/Acme 5201-R.....	21B-100		
M-S-A [®] 88479 and 457117.....	21B-101	x	x
M-S-A [®] 84305 and 457116.....	21B-102	x	x
Protector R1054.....	21B-103	x	
Personal Environment Systems 330, 350, and 360.....	21B-104	x	x
AO R1040.....	21B-107	x	
Safeline 5340.....	21B-108	x	
N rth RP-161.....	21B-109		
Willson R1210.....	21B-110	x	
Willson R1211.....	21B-111	x	x
Willson R1150.....	21B-112	x	
M-S-A [®] 76869.....	21B-113	x	
Welsh 7100.....	21B-114	x	

-Electrically powered models are not approved for underground use where permissible electric equipment is required.

EXPOSURE TO OTHER HAZARDOUS MATERIALS

BB 0022678

This publication is concerned only with respiratory protection against coal and other similar dusts. However, respiratory protection against more hazardous materials may be necessary.

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(2)

PERSONAL
ENVIRONMENT
SYSTEMS, Inc.

January 7, 1972

RECEIVED

JAN 10 1972

MEDICAL DIRECTOR

Lee B. Grant, M.D.
Medical Director
PPG Industries, Inc.
One Gateway Center
Pittsburgh, PA 15222

Dear Dr. Grant:

The enclosed is in answer to your letter of January 4 requesting information on our WHITECAP conditioned air helmet systems.

To our knowledge, in addition to having the only U. S. Bureau of Mines "powered filter positive pressure respirator," we have the only approved systems under Bureau of Mines 19B for supplied air respirators incorporating the Hilsch-Ranque tube principle for temperature control.

We also believe that we have the only air supplied helmet that can meet the noise requirements under Walsh-Healy standards. High pressure air forced through the small orifice of a quick-disconnect fitting introduces a very high noise level to the other brands of air supplied helmets with which we are familiar.

The original WHITECAP design concept was first employee comfort. In the late 1950's the California Department of Health issued a plea to California industry for the development of a comfortable respiratory protection device.

Their original concern was for agricultural spray equipment operators who were suffering the consequences of refusal to wear the conventional face respirator because of its extreme discomfort during long periods of use. This discomfort was magnified during the summertime as a result of the extreme heat in our agricultural valleys. We call your attention to the bottom half of page 16 of our general catalog where our temperature control accessories for our powered respirators are shown.

post office box 862
Glendale, Calif. 91209

4429
San Fernando Rd.
Tel. (213) 245-1096

formerly PPG INDUSTRIES, INC.

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Lee B. Grant, M.D.
January 7, 1972
Page 2

We will shortly be introducing our third generation powered respirator in our WHITECAPSUL II described in the enclosed folder. It will be submitted to the U. S. Bureau of Mines this month for testing, and from past preliminary discussions we are confident of approval.

May we trust the enclosed literature answers most of your questions. We are requesting our eastern representative:

Renahan-Mahoney Associates
P. O. Box 172
Cherry Hill, NJ 08034
Phone: 609-667-3267

to contact you via telephone during their next trip to Pittsburgh, which are frequent, to determine if you have any further questions or would care for them to arrange for a demonstration of any WHITECAP systems that may prove of interest.

Sincerely,

PERSONAL ENVIRONMENT SYSTEMS, INC.

Jack Moore
Jack Moore
Market Analyst

JLM:mg
Encl: Literature
cc: Renahan-Mahoney Assoc.
A. R. Adams

BB 0022680

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PERSONAL ENVIRONMENT SYSTEMS

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INDUSTRIAL NET PRICE LIST & INDEX TO CATALOG TRS-060 JUNE, 1970

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

STOCK NO.	PRICE	PAGE
230	\$ 253.00	11
250	300.00	12
251	271.00	13
252	342.00	8
410	125.00	11
420	205.00	11
455	40.00	13
455	117.00	4
470	104.00	7
480	152.00	7
481	115.00	13
488	127.00	9
520	285.00	11
550	255.00	24
551	301.00	24
580	240.00	7
581	175.00	13
585	257.00	9
730	175.00	14
750	240.00	12
751	230.00	14
760	310.00	15
761	330.00	15
810	150.00	11
820	230.00	11
856	99.00	13
858	146.00	9
870	132.00	7
890	211.00	7
921	149.00	13
888	225.00	9
922	50.00	11
980	275.00	7
981	200.00	13
985	285.00	9
1122	50.00	18
1125	EXCH.	18
1125	45.00	18
1531	5.00	18
1532	5.00	18
1533	5.00	18
1534	5.00	18
1541	6.00	19
1545	1.30	19
1603	6.00	17
1623	5.00	15
1640	30.00	17
1644	40.00	16
1647	1.00	21
1702	60.00	17
1723	30.00	15
1731	44.00	17

STOCK NO.	PRICE	PAGE
1732	\$ 4.00	19
1751	1.50	21
1752	40	21
1802	30.00	17
1803	6.00	17
1902	185.00	18
1903	165.00	18
1904	165.00	16
1941	1.50	19
4222	3.00	20
4223	4.00	20
4302	16.00	-
4312	2.75	20
4312	11.00	20
4312	25.00	20
4316	12.50	20
4324	3.00	20
4390	3.00	20
4400	7.00	20
4401	7.00	20
4402	9.00	20
4408	24.00	20
4410	9.00	20
4422	14.00	20
4423	9.00	20
4425	32.50	20
4426	26.00	20
4440	99.00	21
4444	25.00	21
4450	89.00	21
4501	3.00	21
4832	3.50	21
4904	4.00	21
4805	4.50	21
4806	5.00	21
4902	.60	21
4907	1.10	21
5002	89.00	-
5003	107.00	10,20
5005	86.00	6,20
5007	109.00	9,20
5041	2.50	21
5102	.75	21
5107	10.00	21
5105	12.00	21
5112	16.00	21
5114	8.00	16,21
5115	10.00	18,21
5120	22.00	21
5140	13.00	16
5145	14.00	21
5201	22.00	12,21
5210-2	3.00	21

STOCK NO.	PRICE	PAGE
6210-3	\$ 45.00	21
5220-5	15.25	21
5235	7.00	18
6102	500.00	16
6103	500.00	16
6502	55.00	16
6802	89.00	16
6875	20	19
6888-2	20	16
6807	1.00	19
6838	2.60	19
6901	129.00	16
6929	5.00	19
7203	57.00	14
7204	23.00	14
7206	3.00	14
7235	10.00	14
7285	5.00	15
7270	57.00	15
9409	1.25	20
9410-2	3.00	20
9410-3	45.00	20
9411	1.85	20
9420	22.50	21
9435	29.00	17
9444	5.00	16
9450	12.00	16
9451	4.00	16
9453	1.80	21
9453	5.00	20
9470	18.00	18
9473	40.00	17
9475	89.50	17
9476	44.00	17
9485	198.00	17
9485	2.50	17
9502	24.00	-
S-1046	.90	19
S-1127	3.75	18
S-1128	1.25	18
S-1274	2.50	19
S-1275	5.00	19
S-1279	.90	19
S-1309	3.00	20
S-1309	3.00	20
S-1334	.60	18
S-1335	.60	18
S-1340	.60	18
S-1403	.90	19
S-1412	3.00	18
S-1413	1.40	-
S-1419	1.50	18
S-1426	.30	-
S-1442	3.50	19

UNITED STATES BUREAU OF MINES APPROVED

BELT, BREATHING TUBE & VALVE

For connecting helmet or nose to compressed air line. Nylon web belt with quick release buckle. Control valve has Factor No. 10-3 (P/N 5470) quick disconnect plug to mate with No. 9415 hose (below). Flexible breathing tube discharges air (P/N 5470).



VORTEX COOLING TUBE

Personal air cooling tube weighs only 20 ounces. Improved design vortex tube and 32" Breathing Tube with acoustic liner. Unusually quiet operation. Wearer regulates temperature to as much as 60° under that of air supply. Requires 10 to 22 cfm respirable air at 45 to 150 P.S.I. For more details ask for Tech. Data Sheets E-1172 and E-1173 (P/N 5114 and 5114).



VORTEMP® HEAT/COOLING TUBE

All the advantages of vortex tube described above PLUS HEATING. High level control allows wearer to maintain comfort under wide range of surrounding temperatures. Combines with rugged web belt, heat shield, quick-connectors. (P/N 6501 and 5114).

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COMPRESSED AIR HOSE

25 foot length of 1/2" I.D. high-pressure hose with reusable quick disconnects at each end. Other hose sizes can be substituted for longer length. (P/N 9400)



AIR CLEANER, HELMET STRAIN RELIEF, H.E.P.A.® FILTER, BREATHING TUBE

Using low voltage, 110 volt generator, or line voltage, this air purifying combination removes 99.97% of all particles 0.3 microns or larger from air passing through. Strain relief relieves the pull of air cleaner hose from helmet to shoulder-mounted coupling at belt. Combination includes: No. 1500 Series air cleaner, High Efficiency® filter assembly, No. 9450 strain relief, and No. 5114 or 5115 breathing tube. See pages 4 & 5 for details. "SP. O.F. VOLTAGE: 12; 24; or 115."



BUREAU OF MINES APPROVAL NO. (COMPLETE SYSTEM)

21E-104

195-55
Type C

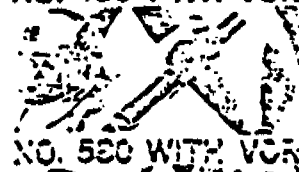
195-55
Type C

195-59
Type C

ECONOMY GENERAL PURPOSE SYSTEMS

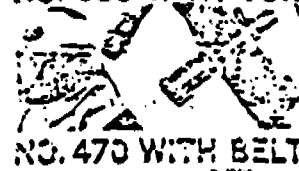
(Less B/M Required 25 ft. high-pressure hose.)

NO. 480 WITH VORTEX TUBE COOLING



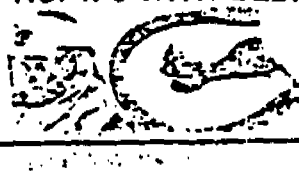
Includes all equipment of System 500 shown above, except for the 25 ft. hose.

NO. 500 WITH VORTEMP HEATING/COOLING



Includes all equipment of System 930 shown above, except for the 25 ft. hose.

NO. 470 WITH BELT, BREATHING TUBE & VALVE



Includes all equipment of System 570 shown above, except for the 25 ft. hose.

5595

WHITECAP PROTECTION FACTOR NOT AFFECTED BY BEARDS, SIDEBURNS, GLASSES.

BB 0022692

UNITED STATES BUREAU OF MINES APPROVED

BELT, BREATHING TUBE & VALVE

For connecting hose to hood to compress air line. Nylon web belt with quick release buckle. Control valve has Foster No. 46-3 (51") quick disconnect plug to mate with No. 5115 hose (below). Flexible breathing tube delivers air from (P/N 9470)



VORTEX COOLING TUBE

Personnel air filter weighs only 20 ounces. Improved design vortex tube and 22" Breathing Tube with automatic temperature control. Vortex regulates temperature of air as much as 50° under that of air supply. Vortex tube to 22 cfm respirable air at 40 to 100 PSI. For more details ask for Tech. Data Sheets B24-T2 and 5114. (P/N 6223 and 5114)



VORTEMP HEAT/COOLING TUBE

All the advantages of Vortex tube described above PLUS HEATING. Vortex heater control allows worker to maintain comfort in wide range of surrounding temperatures. Compact, rugged wet belt, heat shield, quick-connection. (P/N 6901 and 5114)

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COMPRESSED AIR HOSE

25 foot length of 1/2" high-pressure hose with reusable quick connection. Plug on one end; socket on other. Type hose recommended for longer lengths. (P/N 9425)



AIR CLEANER, HELMET STRAIN RELIEF, H.E.P.A. FILTER, BREATHING TUBE

Using low voltage, from vehicle generator, or line voltage, this air purifying combination removes 99.97% of all particles 0.3 microns or larger from air passing through. Strain relief transfers the pull of air cleaner hose from helmet to barrel-mounted coupling at belt. Combination includes No. 1800 Series air cleaner, High Efficiency Filter assembly, No. 9450 strain relief, and No. 5117 or 5115 breathing tube. See pages 4 & 18 for detail. *SPECIFY VOLTAGE: 12; 24; or 115.



NOT COMING FROM PPG FILES

BUREAU OF MINES APPROVAL NO. (COMPLETE SYSTEM)

512-104

19E-56 Type CE

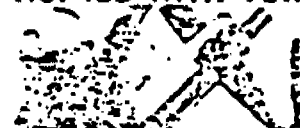
19E-56 Type CE

19E-56 Type CE

ECONOMY SYSTEMS for SANDBLASTING

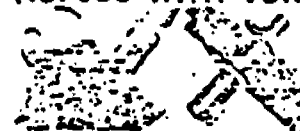
(Less B/M Required 25 ft. high-pressure hose.)

NO. 428 WITH VORTEX TUBE COOLING



Includes all equipment of System 885 shown above, except for the 25 ft. hose.

NO. 585 WITH VORTEMP HEATING/COOLING



Includes all equipment of System 955 shown above, except for the 25 ft. hose.

NO. 458 WITH BELT, BREATHING TUBE & VALVE



Includes all equipment of System 855 shown above, except for the 25 ft. hose.

5596

1 BB 0022683 1

BELT BREATHING TUBE & VALVE

For connecting helmet or hood to compressed air line. Nylon webbing with quick release buckle. Control valve has Factor 44-100 (1/4") quick disconnect plug to mate with No. 5430 hose (below). Flexible breathing tube deadends all action. (P/N 9476)



VORTEX COOLING TUBE

Personal air conditioner weighs only 20 ounces. Improved design Vortex tube and 32" Breathing Tube with automatic heat exchanger for quiet operation. Wearer regulates temperature as much as 60° under that of air supply. Suitable for 22 cfm respirable air at 40 to 100 PSI. For more details ask for Tech. Data Sheet 504-T2 and 504-T3 (P/N 5503 and 5114)



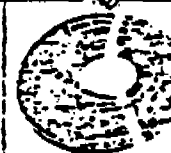
VORTEMP HEAT/COOLING TUBE

All the advantages of Vortex tube described above PLUS HEATING. Single lever control allows wearer to maintain comfortable wide range of surrounding temperatures. Compatible with rugged web belt, heat shield, quick-connection. (P/N 5501 and 5114)



COMPRESSED AIR HOSE

25 foot length of 3/4" I.D. high-pressure hose with reusable quick connection. Plug on one end; socket on other. Two hoses can be connected for longer length. (P/N 5135)



AIR CLEANER, HELMET STRAIN RELIEF, H.E.P.A. FILTER, BREATHING TUBE

Using low voltage from vehicle generator, or line voltage, this air purifying combination removes 99.97% of all particles 0.5 microns or larger from air passing through. Strain relief transfers the pull of air cleaner hose from helmet to swivel-mounted coupling at belt. Combination includes No. 1500 Series air cleaner, High Efficiency™ filter assembly, No. 5430 strain relief, and No. 5430 or 5435 breathing tube. See pages 4 & 16 for details. SPECIFY VOLTAGE: 12; 24; or 115.



BUREAU OF MINES APPROVAL NO. (COMPLETE SYSTEM)

21B-104

93-55 Type C

195-58 Type C

195-55 Type C

ECONOMY SYSTEMS FOR WELDING

(Less B/M Required 25 ft. high-pressure hose.)

NO. 420 WITH VORTEX TUBE COOLING



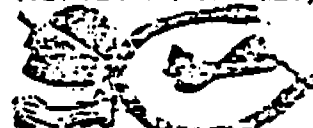
Includes all equipment of System 820 shown above, except for the 25 ft. hose.

NO. 520 WITH VORTEMP HEATING/COOLING



Includes all equipment of System 920 shown above, except for the 25 ft. hose.

NO. 410 WITH BELT, BREATHING TUBE & VALVE

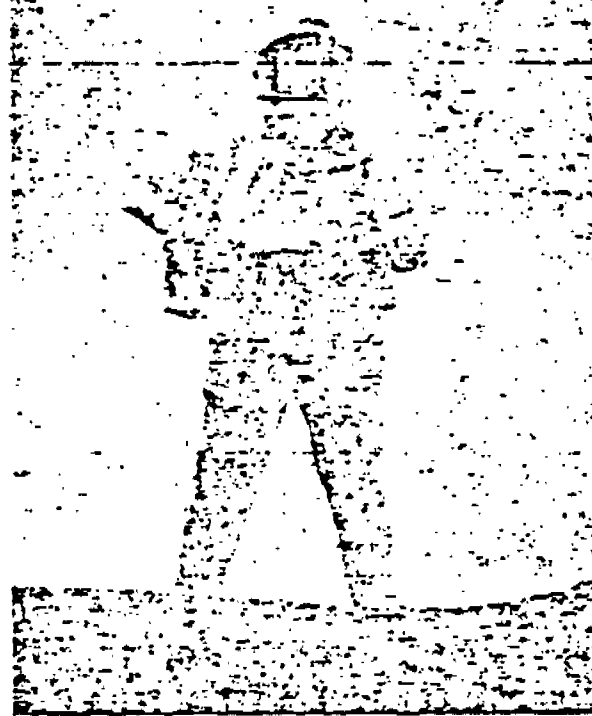


Includes all equipment of System 810 shown above, except for the 25 ft. hose.

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BB 0022684



For further information contact:
Personal Environment Systems
4429 San Fernando Road
Glendale, California 91204
Phone (213) 245-1090

Questions
and Answers
about



WHITECAPSUL II
TM

The Good Guys Always Wear the Whitecap

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WHAT IS THE
WHITCAPSUL II SYSTEM?

It is a lightweight, portable, battery-powered device that removes air-borne pollutants and forces clean filtered air into a helmet or hood. The wearer breathes "hospital-clean" air when working even in a highly contaminated atmosphere.

HOW LIGHT-WEIGHT?

The air cleaner portion weighs less than five pounds. It and the rechargeable battery (also less than five pounds) clip onto a wide padded belt.

HOW COMPACT?

The air cleaner (including pre-filter, blower, motor, and high efficiency filter) is slightly over 1/3 of a cubic foot (7 1/2" deep, 8 1/2" wide, 12" high).

WHY PORTABLE?

Many jobs require complete freedom of movement, unhampered by compressed air line or electric cord. The Whitcapsul II provides positive-pressure respiratory protection plus freedom of movement.

WHY A POWERED
(POSITIVE PRESSURE)
RESPIRATOR?

A filter capable of removing extremely fine particles is likely to have a high resistance. In a non-powered respirator, the wearer's lungs must pull air through the filter every time he inhales, adding to his fatigue. To be effective, a negative pressure respirator must maintain a tight seal between it and the face.

The Whitcapsul II positive pressure respirator provides from three to five times as much air to a loose-fitting enclosure as is needed for breathing. The slight positive pressure prevents air-borne contaminants from entering the helmet cavity. The gentle air flow over the head, neck, and chest also adds to the comfort of the wearer.

FOR HOW LONG CAN
THE WHITCAPSUL II BE
OPERATED CONTINUOUSLY?

If operated from the battery, four hours. For eight-hour shifts an extra battery is needed for a quick exchange at mid-shift. Batteries can be fully recharged overnight.

Filters have a long life because most of the larger air-borne particles are removed by either the washable pre-filter or by the centrifugal cleaning action of the air cleaner.

CAN THE WHITCAPSUL II
BE USED WITHOUT THE
RECHARGEABLE BATTERY?

Yes, an optional external power cord can be plugged into any 12 volt direct current source, such as a vehicle generating system or a 12 volt battery charger.

HOW SMALL PARTICLES?

Filter in Whitcapsul will remove 99.97 per cent of all particles of 0.3 micron diameter or larger. Lung-damaging dusts are defined as those of five microns diameter or less.

HOW COMFORTABLE IS THE
WHITCAPSUL II HELMET?

While wearing the Whitcapsul II helmet, there is adequate room for eyeglasses, goggles, beards or mustaches. Sanitary earplugs or muffs can be worn under the helmet for protection from excessive noise.

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