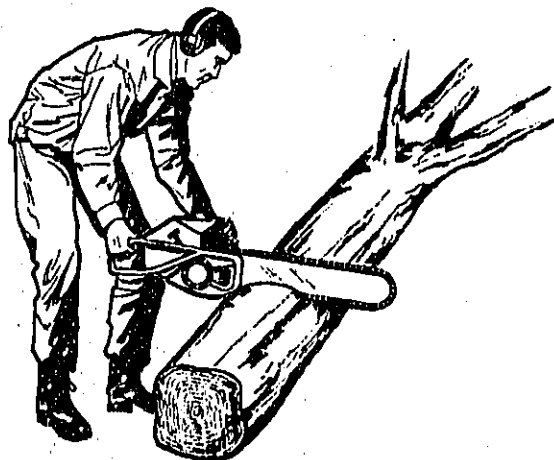


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**bq** Buy Quiet Program

PRODUCT INFORMATION SUPPLEMENT No. 2  
PRODUCT NOISE INFORMATION SERIES  
MAY, 1981

**INFORMATION ON NOISE LEVELS, NOISE MEASUREMENT  
METHODS AND "BUY QUIET" EXPERIENCES ASSOCIATED  
WITH CHAIN SAWS**



**AN INFORMATION SUPPLEMENT FOR GOVERNMENTAL PURCHASING  
AGENTS IN DEVELOPING "BUY QUIET" PROGRAMS**

THE NATIONAL INSTITUTE  
OF  
GOVERNMENTAL PURCHASING  
1735 JEFFERSON DAVIS HIGHWAY  
ARLINGTON, VIRGINIA 22202

## PREFACE

This supplement is intended to help governmental purchasing agents and other officials purchase quieter chain saws. It contains quiet chain saw purchase descriptions which were developed at a government-industry conference hosted by The National Institute of Governmental Purchasing in June, 1980. This conference was the second in a series of specification development conferences that NIGP is conducting on different products.

This supplement is a companion document to the Guide to Purchasing Quieter Products and Services<sup>1</sup> which describes in general terms how noise considerations can be incorporated into purchasing decisions. Together, these documents and other materials available through the Quiet Product Data Bank maintained by NIGP can help you develop a "Buy Quiet" Program for your government.

<sup>1</sup> Issued by NIGP, May, 1980

CONTENTS

Introduction

Section 1. Description of the Product

Section 2. Quiet Chain Saw Purchase Description and Other Related  
Information

Appendices

- A. List of Manufacturers
- B. Buy Quiet Experience
- C. Sources of Additional Information

## INTRODUCTION

The "Buy Quiet" Program is a new concept in which governments cooperate with each other to buy quieter models of equipment. It is being extended with the help of the National Institute of Governmental Purchasing, the National League of Cities, other national organizations, and various local and state agencies. This type of local noise control:

- . costs very little;
- . requires little additional effort;
- . begins the community quieting process;
- . establishes market pressures;

Surveys have shown that noise is the most frequently identified undesirable neighborhood condition in urban areas. Scientists and the medical profession now tell us that noise is no longer a mere irritant, but that in fact it has a very adverse impact on our health and well being. You as a purchasing officer can reduce noise in your community by purchasing quieter products. State and local governments and large private organizations spend billions of dollars each on equipment such as compactors, chain saws, typewriters, lawnmowers, trucks, motorcycles, pneumatic drills, and buses. If these governments can become more selective so as to purchase quieter products, cities and neighborhoods will be quieter.

## Section 1. Description of the Product

A chain saw consists of a gasoline or electric power source which drives an endless chain equipped with sharp cutting teeth. The endless chain rotates around a steel plate called a bar which provides support and is a guide for cutting materials.

Gasoline chain saws are more powerful but noisier and more complex, in terms of maintenance and repair, than electric saws. Also, gasoline chain saws are generally more expensive than electric saws, due to the higher engine costs and additional facts such as clutches.

There are many ways to classify chain saw users depending on chain saw application and consumer type. No absolute classification criteria have ever been published. However, the chain saw industry generally recognizes four categories of chain saw users:

1. Homeowners, who use chain saws in their spare time and derive no income from their use. Major uses are cutting firewood, trimming trees, removing storm damage, and clearing lots. Virtually all electric chain saws sold are purchased by this group. The average homeowner who purchases a chain saw uses it about 10 hours per year.
2. Farmers, who use chain saws for essential tasks around the farm, but not necessarily for work directly producing a farm income. Major uses are land clearing, cutting firewood, and fence maintenance.
3. Commercial users, who purchase chain saws as an auxiliary tool. An example of a commercial user is a builder, who uses a chain saw to clear a lot, or to cut construction lumber.
4. Professional users, who use the chain saw as the primary tool of their trade.

The chain saw industry generally segments its potential markets by these end use customer types.

The quiet chain saw purchase description in Section 2 covers commercial and professional, gasoline powered chain saws; the types of saws generally used by local, state, and federal government activities.

## Section 2. Quiet Chain Saw Purchase Description and Other Related Information

### Definitions of Terms

NOISE: Any undesired sound.

SOUND LEVEL METER: An instrument, consisting of a microphone, an amplifier, an output meter, and frequency-weighted networks, that is used for the measurement of sound levels in a specified manner.

DECIBEL: The intensity of a sound often abbreviated dB. The decibel scale was devised to measure the smallest difference in sound which is detectable by the human ear. Its graduations move up not in a simple arithmetic progression but in a multiple progression based on logarithmic calculations. This means that each increase of one decibel represents a much larger change of intensity than might be expected. Because of the logarithmic progression of the decibel scale, an increase of ten decibels, for example, reflects a ten-fold increase in sound energy, but is perceived as being approximately twice as loud. Thus a sound which is measured at 80 dB contains ten times the sound output and is perceived as being twice as loud as a sound that is measured at 70 dB.

dBA: An expression of sound level taking into account the response of the human ear to sound.

Section 2. Quieter Chain Saw Purchase Description and Other Related Information-continued

The National Institute of Governmental Purchasing (NIGP) has developed a quiet chain saw purchase descriptions which can be used by buyers for quantity purchasing. This purchase description contains two salient elements to acheive quiet.

- (1) A maximum acceptable noise level of 106dBA using the prescribed noise measurement methodology. The range of currently available models is 103dBA to 115dBA.
- (2) An optional price incentive mechanism that allows governments to buy chain saws that are quieter than 106dBA. In essence, governments determine how much additional "quiet" is worth to them; then through the use of a formula reflecting this judgement, they evaluate their bid prices accordingly. The lowest evaluated bid price wins the award.

Specification  
for  
Commercial and Professional  
Chain Saws



**NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING, INC.**

NIGP Purchase Description  
Commercial and Professional Chain Saws  
FSC 3695  
September 5, 1980

This purchase description has been prepared by the National Institute of Governmental Purchasing, Washington, DC in coordination with the Environmental Protection Agency and the Federal Supply Service, GSA, for use by Governmental Purchasing Activities.

1. SCOPE AND CLASSIFICATION:

1.1 SCOPE: This purchase description covers chain saws for "commercial" and "professional" uses.

1.2 CLASSIFICATION: 2 cycle gasoline powered, air cooled. FSC 3695

2. APPLICABLE STANDARDS:

2.1 A.N.S.I. B175.1, "Safety Specifications for Gasoline Powered Chain Saws."

2.2 Power Saw Manufacturers Association Technical Manual (Std. No. W1-77).

3. REQUIREMENTS:

3.1 SIZE, POWER, AND WEIGHT:

Saws shall be available in cutting bar sizes from 10 inches to 48 inches. The Invitation for Bids shall specify the size or sizes required. The Invitation for Bids shall also specify the minimum cylinder displacement and maximum weight required. Weight shall be determined as defined by Chain Saw Manufacturers Association Technical Manual (Std. No. W1.1).

3.2 NOISE LEVEL: Noise level shall not exceed 106 decibels (A Scale) at the operator's ear, measured in accordance with paragraph 2.1.

3.3 SAFETY: Chain Saws shall be certified by Underwriters Laboratory for compliance to A.N.S.I. Safety Standard B175.1.

3.4 IGNITION: Electronic solid state or magneto.

3.5 EXHAUST CONTROL: When specified in Invitation for Bids, muffler shall be fitted with a spark arrestor screen in accordance with A.N.S.I. Safety Standard B175.1.

3.6 PERFORMANCE:

Cutter chains shall saw a minimum square footage per hour in green oak logs and maintain at least 75 percent maximum sawing rate established through an accumulated square foot area without resharpener, as specified below.

<u>Saw Size</u> (inches)	<u>Square feet sawed</u> <u>per hour (min.)</u>	<u>Accumulated square</u> <u>foot area (min)</u>
10	120	160
12-14	150	200
16	200	250
20-26	250	300
over 26 to 48	300	350

3.7 INSTRUCTION PLATES:

Plate or durable decal describing starting procedure, maintenance procedures, and recommended gasoline-oil mixture shall be affixed to the saw.

3.8 WORKMANSHIP:

Chain Saws shall be clean and free from faulty construction or any defect which affects appearance, serviceability or durability.

3.9 WARRANTY:

Chain Saws shall be guaranteed against defects in design, material and workmanship for a period of 1 year from date of receipt at destination except for the engines which will be guaranteed against defects in design, material, and workmanship for a period of 90 days.

3.10 INSTRUCTION BOOKS:

Supplier shall provide 1 copy of complete instructions for maintenance and operation and 1 copy of a complete replacement parts list for each chain saw shipped.

4. SAMPLING, INSPECTION, AND TEST PROCEDURES:

4.1 SAMPLES: Unless otherwise specified in the Invitation for Bids, no bid samples will be required.

4.2 TESTING:

- 4.2.1 Testing for noise level shall be in accordance with paragraph 2.2 above.
- 4.2.2 Verification for noise level and testing of other specification requirements may be performed at the discretion of the contracting activity as indicated in the Invitation for Bids. Such tests shall be performed on bid samples or samples taken from contractor's shipments. In the event products tested fail to meet requirements of this specification, the cost of samples used in testing and the cost of the testing shall be borne by the supplier.
- 4.2.3 Bidders must certify with each bid that the model being offered has been tested in accordance with paragraph 2.2; and, a copy of the laboratory test report must be included with the certification provided. Requests for certification of noise level for the same model year shall not be required unless there has been a design change affecting noise level output.
- 4.2.4 Testing for performance shall be in accordance with 3.6.

5. PREPARATION FOR DELIVERY:

5.1 PACKAGING:

Chain Saws shall be packaged in accordance with normal commercial practice and packed to assure acceptance by common carrier and provide product protection against loss and damage during multiple shipments, handling and storage. Shipping containers shall be in compliance with National Motor Freight Classification and Uniform Freight Classification.

5.2 MARKING: Each shipping container shall be clearly marked to indicate

- a. Name of Contents
- b. Quantity
- c. Contract or Purchase Order Number
- d. Name and Address of Manufacturer
- e. Name and Address of Consignee

6. NOTES:

6.1 DEVIATIONS: Any deviation from this purchase description must be indicated in the Invitation for Bids.

6.2 AVAILABILITY OF DOCUMENTS:

- 6.2.1 A.N.S.I. Standards are available from American National Standards Institute, 1430 Broadway, New York, New York 10018
- 6.2.2 Power Saw Manufacturers' Association Technical Manual is available from Chain Saw Manufacturers' Association, 4340 East-West Hwy., Suite 1008, Bethesda, Maryland 20014

6.3 OPTIONS: Where various options are available under this purchase descriptions, e.g size, horsepower and weight, the Invitation for Bids will specify the option required.

6.4 BID EVALUATION CRITERIA: Attachment "A" to this Purchase Description contains the Technical Evaluation Criteria to be utilized by government purchasing activities in evaluating bids received under Invitation to Bid utilizing this Purchase Description.

**COPIES OF THIS PURCHASE DESCRIPTION ARE AVAILABLE FROM:**

The National Institute of Governmental Purchasing., Inc.  
1735 Jefferson Davis Highway, Suite 101  
Arlington, Virginia 22202

Attachment "A" to:  
NIGP Purchase Description  
Commercial & Professional  
Chain Saws  
FSC 3695  
September 5, 1980

BID EVALUATION CRITERIA

This attachment establishes a procedure by which the government may reward a bidder for offering a product which is quieter than the maximum acceptable noise level of 106 dB(A) required by the purchase description. It provides for contract award on the basis of lowest Evaluated Bid Price, rather than lowest Actual Bid Price. As in Life Cycle Costing, the bidder with the lowest (responsive) Actual Bid Price may not have the lowest Evaluated Bid Price.

The purchaser will not pay a contract price more than X% in total above the average of the Actual Bid Prices.<sup>1</sup> This amount represents the maximum additional amount that the government is willing to pay above the average Actual Bid Price, for each quieter chain saw.

The formula for determining Evaluated Bid Price is:

$$EBP = P - Y\% (P_{AV}) (N_N - N) \text{ where:}$$

EBP = Evaluated Bid Price

P = Actual Bid Price

Y% = Percentage weight designated by the purchasing activity to "reward" the bidder for each decibel that his chain saw is quieter than the noisiest model bid.

P<sub>AV</sub> = Average Actual Bid Price of all chain saw models offered in response to the IFB.

N<sub>N</sub> = Noise level (in decibels) of the noisiest model offered in response to the IFB.

N = Noise level (in decibels) of the chain saw model whose EBP is being determined.

<sup>1</sup>Not to be confused with the "per decibel" percentage in the formula.

SAMPLE OF RESPONSIVE BID TABULATIONS

BIDDERS:

<u>Bidder</u>	<u>Actual Bid Price</u>	<u>Noise Level</u>	<u>Evaluated Bid Price (EBP)</u>
(A) Smith Co.	\$245.00	106	\$245.00
(B) Robert Co.	\$254.00	105	\$249.02
(C) Jones Co.	\$247.00	102	\$227.08
(D) Watkins Co.	\$250.00	101	\$225.10

CALCULATIONS OF EVALUATED BID PRICE:

Assuming that the Purchasing Activity used a 2% "reward" factor for each decibel of increased quietness, the EBP for each bidder would be determined as follows:

(A) Smith Co.  

$$\begin{aligned} \text{EBP} &= \$245 - .02(\$249) (106-106) \\ &= \$245 - \$4.98 (0) \\ &= \$245 - 0 \\ &= \$245.00 \end{aligned}$$

(B) Robert Co.  

$$\begin{aligned} \text{EBP} &= \$254 - .02(\$249) (106-105) \\ &= \$254 - \$4.98 (1) \\ &= \$254 - 4.98 \\ &= \$249.02 \end{aligned}$$

(C) Jones Co.  

$$\begin{aligned} \text{EBP} &= \$247 - .02(\$249) (106-102) \\ &= \$247 - \$4.98 (4) \\ &= \$247 - \$19.92 \\ &= \$227.08 \end{aligned}$$

(D) Watkins Co.  

$$\begin{aligned} \text{EBP} &= \$250 - .02(\$249) (106-101) \\ &= \$250 - \$4.98 (5) \\ &= \$250 - \$24.90 \\ &= \$225.10 \end{aligned}$$

CONTRACT AWARD

Based on an Evaluated Bid Price (EBP) of \$225.10, award should be made to Watkins Co. (Bidder "D") at their actual bid price of \$250.00 per unit for furnishing chain saws with a maximum noise level of 101dB(A). The contract price of \$250 in this hypothetical procurement would have exceeded the Average Actual Bid Price (\$249) by only one dollar per unit (less than half of 1%).

ATTACHMENT A

List of Manufactuters

Listed below are several manufacturers of chain saws. Be sure to include these manufacturers and NIGP on your bidders mailing list. The manufacturers probably will not bid "direct," but they do need to be informed of your requirements for quieter chain saws. The NIGP copy should be sent to National Institute of Governmental Purchasing, Inc. 1735 Jefferson Davis Highway, #101 Arlington, VA 22202.

Reinhard Strube  
VP/General Manager  
Solo, Inc.  
P.O. Box 5030  
Newport News, VA 23605  
(804) 245-4228

Alan Levanson  
Director, Consumer Marketing  
Homelite Division  
Textron, Inc.  
14401 Carowindo Blvd.  
Charlotte, NC 28217  
(704) 588-3200

Jack Gurthrie, Mgr.  
Marketing Services  
Stihl, Inc  
536 Viking Drive  
Virginia Beach, VA 23452  
(804) 486-8444

William Sarrell  
Vice President  
Husgvarna  
224 Thorndale Avenue  
Bensenville, IL 60106  
(312) 595-8500

Jack Ehlen  
Director of Product Safety  
McCulloch Corporation  
5400 Alla Road  
P.O. Box 92180  
Los Angeles, CA 90009  
(213) 827-7111

George Hans  
Marketing Manager  
Desa Inds.  
25000 S. Western Ave.  
Park Forest, IL 60466  
(312) 747-1200

T. Ray Webb  
Merch Manager  
Beaird-Poulan Div.  
Emerson Electric  
5020 Flournoy-Locus  
Shreveport, LA 71109  
(312) 291-2800

Donald Lowrey  
Director, Marketing  
Robert G. Evans Co.  
4330 Clary Blvd.  
Kansas City, MO 64130

Gerald T. Bredlau  
President  
Big Trees Today, Inc.  
11114 Haycreek Road  
Pittsville, WI 54466  
(715) 884-2824

D.J. Schuberg  
Mgr. Mktg.  
Deere & Co.  
John Deere Road  
Moline, IL 61265  
(309) 752-4792

Kevin Sullivan  
Sales Manager  
Stanley Hydraulic Tools  
3810 SE Naef Road  
Milwaukee, OR 97222  
(503) 659-5660

R.L. Ziemer  
Advertising Manager  
Fairmont Hydraulics  
Div. Fairmont Railway Motors  
Harsco Corp.  
415 N. Main Street  
Fairmont, MN 56031  
(507) 235-3361

Frank McDonald  
Director of Marketing  
OMC/Lincoln-Pioneer Div.  
1401 Cushman Drive  
P.O. Box 82409  
Lincoln, NE 68501  
(402) 475-9581

J.W. Shalley  
Mktg. Services Manager  
Toro Co.  
Outdoor Appliance Division  
10901 Red Circle Dr.  
Minnetonka, MN 55343  
(612) 887-8800

Brian Manwaring  
Adv. Coordinator  
Echo Inc.  
3150 MacArthur Blvd.  
Northbrook, IL 60062  
(312) 291-2800

Mr. Robert Newton  
National Government Sales  
Manager  
Sears, Roebuck & Co.  
Sears Tower-D732G  
Chicago, IL 60684  
(312) 875-2500



Appendix B

Governments Known To Have Had Buy Quiet  
Experiences Associated With Chain Saws

The Buy Quiet concept is new and the program is just starting. It should not be surprising, therefore, that only a few governments are known to have had such experiences. As more governments find the concept worthy and practical, this list can be expected to grow. Governments having Buy Quiet experience with chain saws as of this writing include:

	<u>Contact/Phone Number</u>
. Shelby County, Tennessee	Ray Hughes/(901) 528-3360
. Milwaukee, Wisconsin	Hal Leatherby/(414) 278-3639
. State of Washington	Guy McFadden/(206) 753-2477

This list will be updated on a regular basis.

Appendix C

Sources of Additional Information

Information on any aspect of the Buy Quiet Program is available from:

Director, Buy Quiet Program  
National Institute of Governmental  
Purchasing, Inc.  
1735 Jefferson Davis Highway  
Suite 101  
Arlington, Virginia 22202

Telephone (703) 920-4020

For additional information on technical and programmatic matters relating to product noise, you may wish to contact your local or state noise control office.