**A Proposal:**

**Replacing the Shredding Machines**

**at**

**The FBN Corporation**

by

Ed Lindquist, CEO

Better Shredders, Inc.

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for

I. N. Trubble, Chief Financial Officer

FBN Corporation

Lizard Gulch, California

by

Ed Lindquist, CEO

Better Shredders, Inc.

February 20, 2017



***Better Shredders***

***Document Disintegration Specialists***

***4600 Flambeau Parkway***

***Peters Creek, Alaska 95000***

***Phone: (907) 868-1000***

February 19, 2017

Mr. I. N. Trubble

Chief Financial Officer

FBN Corporation

111 Rocky Road

Lizard Gulch, California 85013

Dear Mr. Trubble:

Attached is a proposal from our company to replace the shredding machines in all of the FBN Company corporate offices. You will find that this proposal is comprehensive, inexpensive, and has been certified by Art R. Anderson Company to be fiscally sound.

Our firm has been in business for a long time. We have the skill, expertise, and fortitude to deal with any problem that can arise in this business. You may wish to check with any of the clients we have served in the past; a list of references is provided in Appendix B of the proposal.

The problem with the outmoded shredding machines can be fixed once and for all. You will be delighted with a shredder that can shred horizontally, vertically, diagonally, and conclusively. You will also find that our people are easy to deal with; most are thrilled just to have a job, since they hope it will make attaining citizenship easier.

We are happy to respond to your request for proposal and have found our work in this area challenging but satisfying. We are confident that our proposal is the best that will be presented and urge your early acceptance of it.

Sincerely,



Ed Lindquist, CEO

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ABSTRACT

The FBN Corporation has been unable to keep up with the demands of shredding paper documents. Consequently, major problems in the creative accounting system have occurred causing the corporation to suffer because of cash flow problems, investigative probes, and document availability. If the problem is not solved, company documents could fall into the hands of corporate enemies, certified public accountants, and federal investigators.

The plan for replacing out-of-date shredding machines calls for the use of a new product, the new Turbo BS – the *Better Shredder*™ - a power shredder which makes quantum leaps in the technology of document and object shredding. The process of removing existing equipment, remodeling facilities, and installing the new Turbo BS requires approximately 92 days and a modest cost of $28,362,050. The headquarters building would need to be shut down during that period. The solution to the problem would be accomplished through a sophisticated, phase driven, and well tested process, including best testing, staff training, and gearing up to full speed and capacity quickly.

Better Shredders, Inc. urges thorough but rapid study and acceptance of this proposal so that this critical and costly situation can be quickly alleviated; additionally, certainly personnel costs are expected to explode and skyrocket – timely response can be very cost effective.

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INTRODUCTION

**Background and Need**

For the past five years, the FBN (*Fly By Night*) Corporation has been unable to keep up with the demands for shredding paper documents. This inability has caused major accounting problems because of the availability of intact documents which can be used in a negative fashion by those critical of the company’s unique and industry leading accounting procedures. If the problem is not solved, company documents could fall into the hands of corporate enemies, certified public accountants, and federal investigators. Consequently, the company could go out of business.

Additionally, as documents have moved increasingly into an electronic format, there has been an additional need to shred computer discs, magnetic tapes, CD-ROMs, and on occasion, entire desktop computers.

These difficulties have caused a focus on the following issues:

•*Safety:* The present shredders have become dulled and erratic through years of use, causing important items such as cigars, bottled water, and mail room clerks to be inadvertently shredded. The Occupation Safety and Health Administration (OSHA) has issued several warnings to the corporation about the problem; if there is another instance of malfunction, significant fines will outweigh the cost of replacing the present equipment.

•*Unsightliness:* The present shredders do not keep the shredded materials within the designated containers. Shredded materials have been found in the CEO’s office, the break room, and in the breakfast cereals in the kitchen. The waves of expended materials have even caused surfers from Malibu to try to “hang ten” in the corporate executive offices.

•*Theft:* Renegade origami warriors have scaled the building to try to remove the uncontained shredded materials for purposes of bending, folding, or mutilating in their arcane rites. Other contraband artists have tried to appropriate the materials to assure that there will never be a shortage of hanging chads in future elections.

The situation grows worse each day because documents, paper and electronic, cannot be effectively shredded in a timely, safe, and contained fashion. Also, the materials which are being shredded ineffectively will engulf the entire corporate headquarters within three fiscal quarters. The situation calls for an effective solution which will eliminate all of these problems, so that the FBN Corporation can again assume its leadership role in creative management and accounting practices and also return health to the Swiss banking system.

Figures 1 and 2 on the following page exemplify the seriousness of the situation.

Although there has been much discussion about this matter, there has been little action because of the untimely departure of several high ranking officials in the organization.

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*Figure 1.* A Small Sample of the Shredding Problem in the FBN CEO’s Office



*Figure 2:* The Antiquated R2-D2 Skywalker Shredder (which can no longer use the force)



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**Purpose of Proposal**

The purpose of this proposal is to replace the deteriorated, decimated, and decayed shredders at the FBN Corporation with the new Turbo BS – the *Better Shredder*™, the most significant development in shredding since the Cuisinart – providing an effective solution to the ever increasing needs for power shredding within the corporation.

*Figure 3:* The new Turbo BS – the *Better Shredder*™

[](http://www.djj.com/profile/articles/tampa-shredder.jpg)

**Benefits**

If the *Better Shredder*™ is installed to replace the current outmoded and antiquated shredders, the following improvements will be observed. The *Better Shredder*™, will:

•Shred 500% more documents, both paper and electronic, per hour than the previous shredders

•Shred up to 14 tons of paper and plastic in one batch

•Create shredded materials that are impossible to reconstruct, even with

sophisticated reconstruction technology

•Provide a new source of recyclable material which has a variety of uses:

bulletproof vests, garden soil enrichment, padding term papers, etc.

**Qualifications of Personnel**

The Better Shredder, Inc. Company has been in business for over one hundred and seventy-five years and currently has offices on five continents. The company has a staff of twelve people with a combined number of years of experience equaling four months. Our staff has had voluminous experience in disintegrating materials; some of them have been Navy Seals and others have worked for the TNT cable network.

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The executive management of our staff includes the following:

*T. Nage Mutantninjaturtle,* Chief Executive Officer

•Experience includes shredding both in real and fantasy worlds

•Utilizes high technology personal protective devices

•Graduated from Kung Funiversity with a degree in Demolition Arts

•Works in a clandestine manner and is always one step ahead of his competition

[](NULL) *Picabo Street,* Chief Transportation Officer

•Experience includes working with both downhill and uphill problems

•Got high sitzmarks in college; graduated from *Ecole Apres-ski*

•Hide and seek experience (Picabo, I see you) invaluable in shredding documents

•Always works with solid footing and finishes what she starts

[](http://www.enjoyperu.com/deporte-avent/image/surfing.jpg) *Brian Wilson,* Chief of Creative Technology

•Experience working with both wet and dry shredding

•Passed the College Surfboard exam; rides on waves of success

•Always upbeat even when he appears to be crest fallen

•Provides creative shredding with musical background to Beach Boys oldies, such as *“Shreddin’ USA”*

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Many of the rest of our happy staff are pictured below (some are real wizards):

[](http://www.pcadvisor.co.uk/images/software/MAFia.jpg) [](http://images.google.com/imgres?imgurl=www.ondragonswing.com/antigoosh/aragorn.jpg&imgrefurl=http://www.ondragonswing.com/antigoosh/gooshees.html&h=208&w=227&prev=/images?q=aragorn&start=20&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=N) [](http://images.google.com/imgres?imgurl=tabu.texthalde.de/photos/arwen.jpg&imgrefurl=http://tabu.texthalde.de/20020203.html&h=145&w=145&prev=/images?q=arwen&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [gandalf](http://images.google.com/imgres?imgurl=www.citylit.ac.uk/news/gandalf.jpg&imgrefurl=http://www.citylit.ac.uk/news/index.asp&h=225&w=140&prev=/images?q=gandalf&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G)

**Data Sources**

The literature and other research related to shredding have been thoroughly investigated. Our company prides itself on being up to date in shredding technology. The staff attends annual conferences and seminars on the latest methods for shredding, trimming, cutting, and general destruction. Some of the sources used include:

[](http://images.google.com/imgres?imgurl=www.ish.unimelb.edu.au/Newsletter.jpg&imgrefurl=http://www.ish.unimelb.edu.au/Newsletter_Contents.htm&h=503&w=350&prev=/images?q=newsletter&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G)•*Working at the Head Shred*: A weekly newsletter which includes shredding in a variety of industries: farming, snowboarding, document rearrangement, and cereal production.

[](NULL)•*Shredding, Sledding, and Bedding*: A national seminar attended annually by all reputable companies in the shredding business. A sample agenda, already shredded, is shown.

[](http://images.google.com/imgres?imgurl=www.microsoft.com/frontpage/images/homepage.gif&imgrefurl=http://www.microsoft.com/frontpage/sharepoint/fastfacts.htm&h=212&w=375&prev=/images?q=homepage&start=20&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=N)•*Shred.org*: An Internet Home Page and chat room describing the latest innovations in shredding management and technology.

[](http://images.google.com/imgres?imgurl=www.grubbworm.com/sludge/assets/images/fbi-warn.jpg&imgrefurl=http://www.grubbworm.com/sludge/&h=185&w=326&prev=/images?q=FBI&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G)•*Shredding in the Government*: Governmental publications which deal with both private and public sector shredding and the rules and regulations involved.

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**Scope and Limitations**

The following proposal is limited only to shredding for the FBN Corporation. These materials are to be considered confidential and sensitive. It is not intended to be adapted to any other private or governmental entity. The proposal is limited by the special time related conditions that prevail. No other agency should attempt to use this proposal or any of its parts to shredding technology in any other area. Any persons, living or dead, connected with this proposal are under contract to the Better Shredders, Inc. Company and are not authorized to provide information to any other agency.

[](http://images.google.com/imgres?imgurl=www.health.org/govpubs/workits/confidential.gif&imgrefurl=http://www.health.org/govpubs/workits/tip3.htm&h=181&w=181&prev=/images?q=confidential&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G)This proposal is the property of the Better Shredders, Inc. Company and cannot be reproduced, distributed, copied, or rebroadcast during primetime hours without the express written consent of the President of the company and its sixteen in-house attorneys. English 212 classes at the University of Alaska have specific exemption from the above limitations. A specific list of the limitations and specifications is found in Appendix C.

**PROPOSED PLAN**

The following plan provides for the replacement of the current shredding machines at the FBN Corporation with the new Turbo BS – the *Better Shredder*™. The plan is designed to be comprehensive while retaining a simple format for ease of understanding. Additional technical details will be provided upon request. The plan deals with all contingencies that might occur.

**Methods**

The major methods to be employed deal with the following areas:

•Removal of the current shredding equipment

•Preparation of the facilities for installation of the new Turbo BS –

the *Better Shredder*™

•Installation of the new Turbo BS – the *Better Shredder*™

•FBN staff training on using the new Turbo BS – the *Better Shredder*™

•Beta testing of the new Turbo BS – the *Better Shredder*™

•Establishing full production mode for new Turbo BS – the *Better Shredder*™

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*Phase 1: Removal of the current shredding equipment:*

1. Hazmat teams certified in dealing with sensitive materials will be dispatched by our office. They will assure that the radioactive units and asbestos have been removed from all of the current shredders. They will also get the “lead out” of lead based paint used to camouflage the present printers.

[](http://images.google.com/imgres?imgurl=www.osuokc.edu/bachelors/images/hazmat.jpg&imgrefurl=http://www.osuokc.edu/bachelors/&h=162&w=250&prev=/images?q=hazmat&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www.butte.cc.ca.us/instruction/pstc/images/hazmat.jpg&imgrefurl=http://www.butte.cc.ca.us/instruction/pstc/hazmatf/hazmat.htm&h=303&w=258&prev=/images?q=hazmat&start=20&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=N)[](NULL)

2. Deconstruction teams from our company will then be sent to disassemble all of the units and sorts the parts into piles in order of size. Fork lifts will then transport the parts to a shielded underground test site in the desert not far from company headquarters.

[](http://images.google.com/imgres?imgurl=www.mufrti.org/hazmat-silver-suits_r2_c2.gif&imgrefurl=http://www.mufrti.org/programs.htm&h=151&w=234&prev=/images?q=hazmat&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www.longhillnj.org/lht/picts/hazmat.jpg&imgrefurl=http://www.longhillnj.org/lht/emergenc.htm&h=209&w=200&prev=/images?q=hazmat&start=20&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=N) [](http://images.google.com/imgres?imgurl=www.ccst.ucr.edu/ccst/pubs/nwsltr/v1i2/images/hazmat.jpg&imgrefurl=http://www.ccst.ucr.edu/ccst/pubs/nwsltr/v1i2/v1i2.html&h=224&w=198&prev=/images?q=hazmat&start=20&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=N) [](http://images.google.com/imgres?imgurl=www.exchange-starters-and-alternators.co.uk/images/fork-lift.jpg&imgrefurl=http://www.exchange-starters-and-alternators.co.uk/products.htm&h=210&w=254&prev=/images?q=fork+lift&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G)

3. Evaluation teams from our company will then determine if any of the parts are usable for other applications; any such usable parts will be hauled off in semi-trailer trucks and taken to our company headquarters. The company will sell off those parts on *e-Bay*; 4.2% of the profits will be returned to the FBN Corporation; the remainder will retained by our company for executive bonuses.

[](NULL) [](http://images.google.com/imgres?imgurl=www.cnwhs.org/photos/images/boone/trailer.jpg&imgrefurl=http://www.cnwhs.org/photos/images/motherpage.htm&h=540&w=860&prev=/images?q=semi-trailer&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www.dhl-usa.com/img_bs/Network-strategic-parts.jpg&imgrefurl=http://www.dhl-usa.com/spc&h=154&w=147&prev=/images?q=parts&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www.teamnicole.com/images/ebay.jpg&imgrefurl=http://www.teamnicole.com/store/index.php&h=150&w=150&prev=/images?q=e-bay&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G)

4. Demolition teams from our company will then detonate the unusable parts in the secure underground location using small nuclear devices (under one megaton) which have the Environmental Protection Agency’s seal of approval. When we are able to return to the detonation site in twenty-five years, the remaining particles will be bottled and sold as bath salts in any remaining K-Mart stores.

[](http://images.google.com/imgres?imgurl=www.spacedaily.com/images/nuclear-underground-crater-bw-bg.jpg&imgrefurl=http://www.spacedaily.com/news/icbm-02a.html&h=266&w=200&prev=/images?q=underground+nuclear+tests&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www.nv.doe.gov/news&pubs/publications/historyreports/news&views/images/4x5/atmospher1.JPG&imgrefurl=http://www.nv.doe.gov/news&pubs/publications/historyreports/news&views/atmosphere.htm&h=360&w=287&prev=/images?q=underground+nuclear+tests&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www.cleanwater.gov/icons/agencies/epa.gif&imgrefurl=http://www.cleanwater.gov/action/partners.html&h=144&w=144&prev=/images?q=environmental+protection+agency&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www.shadyacres.org/images/images/k-mart.jpg&imgrefurl=http://www.shadyacres.org/local_businesses.htm&h=254&w=319&prev=/images?q=K+Mart&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G)

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*Phase 2: Preparation of the facilities for installation of the new Turbo BS –*

*the Better Shredder™:*

Interior demolition teams will remove all the sheetrock and other wall covering materials from the interior walls of the building. Electrical teams will then replace all 100 and 220 wiring with the new 880 wiring required to operate the Turbo BS. The walls will then be recoated with a combination Kevlar/Corian material to contain the high levels of heat produced by this new type of wiring. Outlets will be installed every four feet on all the interior walls of the building, thus allowing the Turbo BS to be operated in almost any location, which is particularly helpful when there are auditors in the building.

[](NULL) [](http://images.google.com/imgres?imgurl=www.inspect-ny.com/aluminum/kaiser1.jpg&imgrefurl=http://www.inspect-ny.com/aluminum/recogniz.htm&h=716&w=469&prev=/images?q=electrical+wiring&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www.tenten.mb.ca/apt108/108_13a.jpg&imgrefurl=http://www.tenten.mb.ca/apt108/108_13a.htm&h=512&w=585&prev=/images?q=electrical+wiring&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www.4thstate.com/publications/images/kevlar.gif&imgrefurl=http://www.4thstate.com/publications/KevlarPrint.htm&h=257&w=337&prev=/images?q=kevlar&start=40&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=N)

*Phase 3: Installation of the new Turbo BS – the Better Shredder™:*

The new Turbo BS will be transported to the FBN Corporation headquarters first by rail and then by ox-team and deposited in front of the building. The new shredder will be attached to a short range rocket and elevated to the fiftieth floor where the training and beta testing of the machine will take place. The shredder can then simply be plugged into any one of the outlets which connect to the 880 wiring which had been installed.

[](http://images.google.com/imgres?imgurl=www.railroadextra.com/ststhcar.jpg&imgrefurl=http://www.railroadextra.com/ststhcar.Html&h=500&w=566&prev=/images?q=railroad+train&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=saber.net/~burkhardt/railroad/skunk-train-f.jpg&imgrefurl=http://saber.net/~burkhardt/railroad-reviews.html&h=190&w=273&prev=/images?q=railroad+train&start=20&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=N) [](http://images.google.com/imgres?imgurl=www.photolib.noaa.gov/historic/c&gs/images/theb1356.jpg&imgrefurl=http://www.photolib.noaa.gov/historic/c&gs/theb1356.htm&h=428&w=700&prev=/images?q=ox+team&start=20&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=N) [](http://images.google.com/imgres?imgurl=voyager.jpl.nasa.gov/mission/images/rocket.jpg&imgrefurl=http://voyager.jpl.nasa.gov/mission/fastfacts.html&h=600&w=465&prev=/images?q=rocket&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G)

*Phase 4: FBN staff training on using the new Turbo BS – the Better Shredder™:*

FBN staff members will be trained on the uses of the Turbo BS in secluded training rooms on the fiftieth floor of the headquarters building. They will be specifically training about safety precautions with the motto “better shred than dead.” The training sessions will be used incorporating the instructional methods which have been honed and perfected in English 212 at the University of Alaska Anchorage.

[](http://images.google.com/imgres?imgurl=www.tribalcog.com/ecard/cambodia/S21_torture_room_m.jpg&imgrefurl=http://www.tribalcog.com/ecard/cambodia/past.html&h=140&w=190&prev=/images?q=interrogation+rooms&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www.lisalouckschristenson.com/POWERPOINT.008.gif&imgrefurl=http://www.lisalouckschristenson.com/Prentice-Vicky.html&h=504&w=672&prev=/images?q=PowerPoint&start=40&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=N) [](http://images.google.com/imgres?imgurl=www.suburbanchicagonews.com/features/alcohol/images/party.jpg&imgrefurl=http://www.suburbanchicagonews.com/features/alcohol/page8.html&h=292&w=384&prev=/images?q=party&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www.davidpearcesnyder.com/David-Lecturing.gif&imgrefurl=http://www.davidpearcesnyder.com/programs.htm&h=404&w=352&prev=/images?q=lecturing&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G)

*Phase 5: Beta testing of the new Turbo BS – the Better Shredder™:*

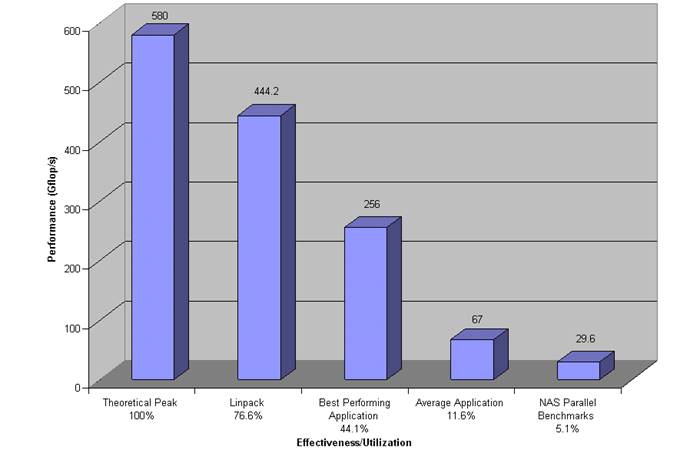
Beta testing will be carried out using guinea pigs in a simulation chamber to shred early Jay Leno monologue manuscripts.

[](http://images.google.com/imgres?imgurl=www.pearsonspets.com/images/baby-guinea-pigs.jpg&imgrefurl=http://www.pearsonspets.com/guinea-pigs1.htm&h=188&w=250&prev=/images?q=guinea+pigs&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www.drdo.org/labs/combat/r&de/images/schamber.jpg&imgrefurl=http://www.drdo.org/labs/combat/r&de/achieve.shtml&h=296&w=453&prev=/images?q=simulation+chamber&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://images.google.com/imgres?imgurl=www1.fccj.org/bwinters/gutenberg-large.jpg&imgrefurl=http://www1.fccj.org/bwinters/resources.htm&h=334&w=502&prev=/images?q=guttenberg+bible&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G)

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*Phase 6: Establishing full production mode for new Turbo BS – the Better Shredder™:*

Benchmark production established in the beta testing mode for the new shredder will then be implemented. Actual production will be measured against shredding standards established by NOSE (National Organization of Shredders Extraordinaire). It is anticipating that shredding will take place around the clock (24/7) with maintenance (lube and oil changes) every one million reams of paper and/or four tons of plastics and metals.

[](http://images.google.com/imgres?imgurl=www.ventanamed.com/modules/EZCMS/pictures/BENCHMARK-1.JPG&imgrefurl=http://www.ventanamed.com/index.php?name=EZCMS&page_id=98&h=266&w=250&prev=/images?q=benchmark&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G) [](http://www.nersc.gov/images/benchmark.gif) N.O.S.E.

**Timetable**

It takes approximately 92 days from the time the bid is awarded to have the new shredder installed and fully operational. The following complete timetable specifies the stages of each process. Although the actual installation time is short, the time required for obtaining and pre-processing the ingredients for the product is substantial, because of the volatility and short shelf life of the ingredients.

**Activity** **Completion Date**

Removal of current shredding equipment Day 25

Preparation of facilities for installation Day 50

Installation of new Turbo BS Day 51

FBN staff training on new machine Day 81

Beta testing of new shredder Day 82

Establishing full production mode Day 92

**Materials and Equipment**

The following materials will be needed:

1,000,000 feet 880 Romex Wire

7,200 Electrical Outlets

500,000 square feet Kevlar/Corian

2 1 Megaton Explosive Devices

1,530 Hazmat suits

500,000 gallons Rocket fuel

1 Expendable X15 Rocket

14 tons Paper materials for shredder testing

2 quarts Lead based paint remover

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The following equipment will be needed:

Peterbilt Semi-trucks 2

Lamborghini Fork Lifts 2

Ox teams and wagons 1

Carhartt jackets, extra large 76

Small railroad train 1

Benchmarking computers 930

*See illustrations in Methods Section (since this is an Alaskan firm, Carhartt’s are always required)*

**Personnel**

The following personnel are required to implement this proposal:

* Executives (37) for 92 days each
* Interior Demolition Experts (26) for 20 days
* Hazmat Specialists (23) for 20 days
* Deconstruction Coordinators (5) for 24 days
* Assessment Officers (14) for 20 days
* Exterior Demolition Experts (3) for ½ day
* Guinea Pigs (934 and increasing hourly) for 10 days
* Consultant from UAA (1) – 92 days
* Mule Team Driver (1) – 1 day
* Mule Team Driver’s Mate (1) – 1 day
* Railroad Engineer (1) – 1 day
* Training Specialists (74) – 20 days
* Electricians (880 wire certified) – 14 days
* Roustabouts (1,432) – 5 days

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**Facilities**

The headquarters of the FBN Corporation building will need to be evacuated for 92 days in order for the remodeling, removal of old equipment, and installation of new equipment to occur. Also, an underground nuclear testing site will be needed for a 25-year period.

[](http://images.google.com/imgres?imgurl=www.bewley.net/vacation/sf-skyscraper.jpg&imgrefurl=http://www.bewley.net/vacation/&h=495&w=297&prev=/images?q=skyscraper&start=20&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=N) [](http://images.google.com/imgres?imgurl=www.brook.edu/FP/PROJECTS/NUCWCOST/nts2.jpg&imgrefurl=http://www.brook.edu/FP/projects/nucwcost/nts.htm&h=501&w=400&prev=/images?q=nuclear+testing&svnum=10&hl=en&lr=&ie=UTF-8&oe=UTF-8&sa=G)

**Cost**

The summary cost breakdown for this project is as follows (a complete cost summary is found in Appendix C:

•Materials as listed above $3,000,000

•Equipment purchase $1,000,000

•Equipment rental $500,000

•Overall labor $10,987,000

•Management oversight $12,000,000

•Consultant $875,000

•Turbo BS - *Better Shredder™*  $50

**Total** **$28,362,050**

**Expected Results**

When the Turbo BS - *Better Shredder™* , the following results should be observable:

•Paper documents can be shredded at the rate of four (4) tons per minute

•Plastic and metal objects can be shredded at the rate of 13.2 tons per hour

•Morale will be improved because employees will again feel safe

•Executives will be able to return from hiding

•Ambience of the company will be improved as the new machine will blend into the surroundings

•FBN Corporation will again become a lighthouse in creative accounting leadership

within the industry

•Martha Stewart can return to concentration upon pastries and home decorating

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**Feasibility**

This project can be accomplished, but only Better Shredders, Inc. can do it. Only our company has the experience, the expertise, and the chutzpah to make this project successful. Also, only our company has access to the potpourri of experts to accomplish all the tasks related to a project of this magnitude. No other company would be able to accomplish this task since they do not have the appropriate resources. This is a demanding and exacting project, but our company can do it. If the Turbo BS - *Better Shredder™* does not perform at the promised and exemplary level described within, it can be returned in a self-addressed package within 10 days and all agreements will be shredded.

**CONCLUSION**

The preceding proposal is one that is:

•Well researched

•Proven over six months

•Feasible

•Cost effective

Most of all, the proposal meets the expressed and critical needs of the FBN Corporation and will allow it to take its rightful place in the industrial world.

For these reasons, it is requested that this proposal be accepted immediately so that the project can move forward without delay. It might also be noted that the personnel costs for demolition experts have been blown out of sight and are expected to go sky high, so the cost can be more economical if the decision to move ahead is made quickly.

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**Appendix A:** Technical Specifications of the Turbo BS (Better Shredder)

*Note:* These specifications are remarkably similar, in fact, they are exactly the same as for the Apple iMac, the platform upon which the Turbo BS was built.

|  |  |  |
| --- | --- | --- |
| **Configurations** | | |
| **Order no.** | [**M9105LL/A**](http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore?family=iMacG4) | [**M8935LL/A**](http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore?family=iMacG4) |
| **Display** | 15-inch (viewable) TFT active-matrix LCD, 1024 by 768 pixels, millions of colors | 17-inch (viewable) widescreen TFT active-matrix LCD, 1440 by 900 pixels, millions of colors |
| **Processor** | 800MHz PowerPC G4 | 1GHz PowerPC G4 |
| **System bus** | 100MHz | 133MHz |
| **Memory** | 256MB of SDRAM; supports up to 1GB | 256MB of PC2100 (266MHz) DDR SDRAM; supports up to 1GB |
| **Hard drive (3)** | 60GB Ultra ATA/66 (7200 rpm) | 80GB Ultra ATA/100 (7200 rpm) |
| **Optical drive** | 32X Combo (DVD-ROM/CD-RW) | 4X SuperDrive (DVD-R/CD-RW) |
| **Graphics support** | NVIDIA GeForce2 MX with 32 MB of DDR SDRAM | NVIDIA GeForce4 MX with 64 MB of DDR SDRAM |
| **Ports** | Two FireWire 400 ports, five USB ports (three on system, two on keyboard), mini-VGA output port, headphone jack, Apple speaker minijack, audio line in jack (17-inch model) | |
| **VGA video mirroring** | Yes(7) | Yes(7) |
| **S-video and composite video output** | No | Yes(7) |
| **Networking** | Built-in 10/100BASE-T Ethernet and 56K V.92 modem (4) | |
| **Wireless** | AirPort ready; Bluetooth via USB adapter (2) | AirPort Extreme ready(5); internal Bluetooth module available as a build-to-order option |
| **System software** | Mac OS X v10.2 Jaguar | |
| **Software** | iLife, including iTunes, iPhoto, iMovie and iDVD (requires SuperDrive (8)), Quicken 2003 Deluxe, World Book 2003 Edition, AppleWorks, Mac OS X Chess, Otto Matic, Deimos Rising, Sound Studio, FAXstf, QuickTime, iChat, iCal, iSync, DVD Player, Mail, Microsoft Internet Explorer, EarthLink, Acrobat Reader, Classic environment and Apple Developer Tools | |
| **Hardware accessories** | Apple Pro Keyboard, Apple Pro Mouse, Apple Pro Speakers, modem cable | |
| **Limited Warranty and Service** | Your iMac comes with 90 days of telephone support and a one-year limited warranty. Purchase the [AppleCare Protection Plan](http://www.apple.com/support/products/proplan.html) and get three years of service and support. Only the AppleCare Protection Plan provides you with direct telephone support from Apple technical experts and the assurance that repairs will be handled by Apple-certified technicians using genuine Apple parts. For more information, visit [Apple support](http://www.apple.com/support/products/) or call 800-823-2775. | |
| **Internet access** | All models also include 30 days of free Internet service through [EarthLink](http://www.apple.com/earthlink/). Internet access requires a compatible Internet service provider; fees may apply. | |

|  |  |
| --- | --- |
| **Build-to-Order Options** | |
| Order a custom-configured computer from the online [Apple Store](http://www.apple.com/store/) or an authorized Apple reseller. | |
| **Memory** | 256MB, 512MB, 1GB (4) |
| **Wireless** | AirPort Card [M7600LL/E](http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore?productLearnMore=M7600LL/E) (15-inch model) AirPort Extreme Card [M8881LL/A](http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore?productLearnMore=M8881LL/A) (17-inch model) AirPort Extreme Base Station [M8930LL/A](http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore?productLearnMore=M8930LL/A) AirPort Extreme Base Station (with modem and antenna port) [M8799LL/A](http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore?productLearnMore=M8799LL/A) Internal Bluetooth module (17-inch model) D-Link USB Bluetooth adapter [T4728G/B](http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore?productLearnMore=T4728G/B)  13 |
| **Adapters and Cables** | Apple Video Adapter [M9109G/A](http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore?productLearnMore=M9109G/A) Apple VGA Display Adapter [M8639G/A](http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore?productLearnMore=M8639G/A/E) Apple FireWire Cable (4-pin to 6-pin) [M8706G/A](http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore?productLearnMore=M8706G/A) |
| **Services** | AppleCare Protection Plan [M8851LL/A](http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore?productLearnMore=M8851LL/A) .Mac Subscription [M8778LL/A](http://store.apple.com/1-800-MY-APPLE/WebObjects/AppleStore?productLearnMore=M8778LL/A) |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Technical Specifications**  **Processor and memory**   |  |  | | --- | --- | | dot2 | 800MHz or 1GHz PowerPC G4 processor with Velocity Engine | | dot2 | 256K on-chip level 2 cache at full processor speed | | dot2 | 100MHz or 133 Mhz system bus | | dot2 | 17-inch model includes 256MB of PC2100 (266MHz) DDR SDRAM expandable to 1GB; one 184-pin DIMM and one open user-accessible SO-DIMM slot | | dot2 | 15-inch model includes 256MB of SDRAM expandable to 1GB; one 168-pin DIMM and one open user-accessible SO-DIMM slot |   **Storage**   |  |  | | --- | --- | | dot2 | 60GB or 80GB Ultra ATA 7200-rpm hard disk drive (3) | | dot2 | One of the following optical drives:   |  |  | | --- | --- | | - | Combo drive (DVD-ROM/CD-RW); reads DVDs at 8x speed, writes CD-R discs at 32x speed, writes CD-RW discs at 10x speed, reads CDs at 32x speed | | - | SuperDrive (DVD-R/CD-RW); writes DVD-R discs at 4x speed, reads DVDs at 8x speed, writes CD-R discs at 16x speed, writes CD-RW discs at 8x speed, reads CDs at 32x speed | |   **Display**   |  |  | | --- | --- | |  | Built-in 17-inch (viewable) widescreen or 15-inch (viewable) TFT active-matrix liquid crystal display | | dot2 | Millions of colors at all resolutions | | dot2 | Typical viewing angle: 120° horizontal; 90° vertical | |  | Typical brightness: 200 cd/m2 | | dot2 | Typical contrast ratio: 300:1 |   **Peripheral connections**   |  |  | | --- | --- | | dot2 | Two FireWire 400 ports; 8 watts shared | | dot2 | Total of five USB 1.1 ports; three on computer (shared on two 12-Mbps controllers); two on keyboard | | spacer | **Graphics support**   |  |  | | --- | --- | | dot2 | NVIDIA GeForce4 MX graphics processor with AGP 4X support or GeForce2 MX graphics processor with AGP 2X support | |  | 64MB or 32MB of dedicated Double Data Rate (DDR) video memory | | dot2 | 17-inch display resolutions: 1440 by 900 (native), 1152 by 720, 1024 by 640, and 800 by 500 pixels at 16:10 aspect ratio; 1024 by 768, 800 by 600, and 640 by 480 pixels at 4:3 aspect ratio | | dot2 | 15-inch display resolutions: 1024 by 768 (native), 800 by 600, and 640 by 480 pixels at 4:3 aspect ratio |   **Communications**   |  |  | | --- | --- | |  | Built-in 56K V.92 modem (RJ-11 connector) (4) | | dot2 | Built-in 10/100BASE-T Ethernet (RJ-45 connector) | | dot2 | Built-in antennas and expansion slot for optional 54-Mbps AirPort Extreme Card (17-inch model) (5) or 11-Mbps AirPort Card (15-inch model) (2) | |  | Optional Bluetooth (requires Bluetooth adapter, sold separately; 17-inch model can be custom configured with internal Bluetooth module) |   **Audio**   |  |  | | --- | --- | | dot2 | Built-in speaker | |  | Apple Pro Speakers (9 watts each) | | dot2 | Apple Speaker minijack | | dot2 | Internal 18-watt digital amplifier | |  | Headphone jack | | dot2 | Audio line in jack (17-inch model) | | dot2 | Built-in microphone |   **Video**   |  |  | | --- | --- | | dot2 | Mini-VGA output port for video mirroring on external display or projector (requires Apple VGA Display Adapter, sold separately) | | dot2 | 14 | | spacer | **Electrical and environmental requirements**   |  |  | | --- | --- | | dot2 | Meets ENERGY STAR and TCO 95 requirements | |  | Line voltage: 90V to 264V AC | | dot2 | Frequency: 47Hz to 63Hz, single phase | |  | Maximum continuous power: 160W (17-inch model); 130W (15-inch model) | | dot2 | Operating temperature: 50° to 95° F (10° to 35° C) | | dot2 | Storage temperature: -40° to 185° F (-40° to 85° C) | | dot2 | Relative humidity: 5% to 95% noncondensing | |  | Maximum operating altitude: 10,000 feet |   **Size and weight (iMac with 17-inch display)**   |  |  | | --- | --- | | dot2 | Height: 13.03 inches (33.1 cm) minimum; 20.0 inches (50.9 cm) maximum | | dot2 | Width: 16.7 inches (42.3 cm) minimum; 17.7 inches (44.9 cm) maximum | | dot2 | Depth: 10.6 inches (27.0 cm) minimum; 16.7 inches (42.3 cm) maximum | | dot2 | Diameter of base: 10.6 inches (27.0 cm) | | dot2 | Weight: 22.8 pounds (10.4 kg)(6) |   **Size and weight (iMac with 15-inch display)**   |  |  | | --- | --- | | dot2 | Height: 12.95 inches (32.9 cm) minimum; 20.0 inches (50.9 cm) maximum | | dot2 | Width: 15.1 inches (38.4 cm) minimum; 16.3 inches (41.5 cm) maximum | | dot2 | Depth: 10.6 inches (27.0 cm) minimum; 16.3 inches (41.5 cm) maximum | | dot2 | Diameter of base: 10.6 inches (27.0 cm) | | dot2 | Weight: 21.2 pounds (9.7 kg)(6) | |

**Appendix B:** Partial List of Clients

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | | --- | | **A. J. Antunes & Co.** | | **Scope:** design and manufacture of commercial food equipment, Pressure switches, electronic controls and wire sets, water filtration systems and contract circuit board assembly | | **Industry Classification:** 018 | |  | 180 Kehoe Blvd., Carol Stream, IL 60188 |  |  |  | ISO 9001:2000 |  |
|  | | | | | | | | |
|  | |  | | --- | | **A.D. Transport Express, Inc.** | | **Scope:** Transportation, storage, and delivery of products for the automotive and other industries | |  | 5601 Belleville Road, Canton, MI 48188 |  |  |  | ISO 9001:2000 |  |
|  | | | | |  |  |  |  |
|  | | | | | | | | |
|  | | | | | | | | |
|  | |  | | --- | | **A.O. Smith** | | **Scope:** design and manufacture of ac electric motors | |  | | **Industry Classification:** 019 | |  | 204 Red Road, McMinnville, TN 37110 |  |  |  | ISO 9001:1994 |  |
|  | |  | | --- | | **AAC, Inc.** | | **Scope:** distribution and importation of electric and electronic components. (Excludes Clause:7.3 - Design Control, 7.5.2 - Validation of Processes for Production and Service Provision, 7.5.4 - Customer Property and 7.6 - Control of Measuring and Monitoring Devic | |  | | **Industry Classification:** 029 | |  | 570 West Lambert Rd., Unit M, Brea, CA 92821 |  |  |  | ISO 9001:2000 |  |
|  | | | | | | | | |
|  | |  | | --- | | **AAF International** | | **Scope:** the manufacture of air filtration products | |  | | **Industry Classification:** 018 | |  | 2100 Nelwood Dr., Columbia, MO 65202 |  |  |  | ISO 9002:1994 |  |
|  | | | | | | | | |
|  | | | | | | | | |
|  | |  | | --- | | **AAR Aircraft Component Services** | | **Scope:** The repair, overhaul, and test of aerospace components for use in commercial and military applications. Excludes 7.3:Design and Development | |  | 747 Zeckendorf Blvd., Garden City, NY 11530 |  |  |  | ISO 9001:2000 |  |
|  | | | | | | | | |

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**Appendix C:** Complete Cost Summary

**1. Facts & Assumption**

|  |  |  |
| --- | --- | --- |
| Invoice amount | $100,000 | (A) |
| Factoring fee | 1.50% | (B) |
| Advance rate | 80% | (C) |
| Interest | Prime rate + 2.5% p.a. (Note: Prime Rate: 7.25% p.a.) | (D) |
| Term | Net 30 days | (E) |
| Floating days | 3 days | (F) |
| Collection | 42 days | (G) |

**2. Cost Calculation**

|  |  |  |  |
| --- | --- | --- | --- |
| Factor commission (A x B) |  | $ 1,500.00 | (H) |
| Interest on advance    A x 80% x 9.75% p.a./360 days x (42+3) days | | $ 975.00 | (I) |
|  |  | ------------------- |  |
| **Total Costs** |  | $ 2,475.00 | (H+I) |

**3. Payment to Client**

|  |  |  |  |
| --- | --- | --- | --- |
| At the time of advance | $80,000 less fee | $ 78,500.00 | (J) |
| At the time of collection | $100,000 less interest and $80,000 | $ 19,025.00 | (K) |
|  |  | ------------------- |  |
| Disbursement total |  | **$ 97,525.00** | (J + K) |

Factoring commission and all other charges will be made to client's reserve account at the time of actual occurrence in the form of advances. If you do not use advance service, however, charges will be made at the time of collection of the invoices.

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**Appendix D:** Sample Article: The Turbo BS

Article from: *Shredded Let Us Magazine* October 1994  
by Haney Manoosh  
  
The term "turbo" or "turbocharger" is frequently heard in the world of high-performance. However, many people are unfamiliar with these devices and this is unfortunate, because turbocharging is one of the most cost-effective methods of producing maximum horsepower per dollar, particular in high power shredders, the Turbo BS being a good example.  
  
The turbo itself is a relatively simple device. Its moving parts basically consist of two wheels mounted on a common shaft; the turbine wheel and compressor wheel. The shaft is mounted in oil-fed bearings inside a compact center housing and the wheels are located at either end of the shaft, each one in its own housing. In function, exhaust gases leaving the engine are directed into the turbine housing. This housing directs. the high-velocity gases at the turbine wheel, causing the wheel to rotate. After the gases have passed through the turbine wheel, they exit the turbine housing and are discharged through the shredder's exhaust system. The rotation of the turbine wheel drives the compressor wheel (which is at the opposite end of the shaft). As the compressor wheel spins, it inducts air into the compressor housing. There it is compressed and discharged into the intake system of the shredder, providing boost pressure. A turbocharger creates horsepower by forcing more air into an shredder than that shredder could normally ingest during the intake portion of its cycle. It does this by compressing air then forcing it into the intake manifold and ports. This additional pressure is known as boost pressure. Boost pressure is typically expressed in pounds per square inch or millimeters of Mercury. This gives us an indication of how much additional airflow and pressure there is available to the engine when the turbo is operating. The amount of boost pressure is usually determined by a wastegate. This device is frequently an integral part of the turbine housing. It functions by passing exhaust gases around the turbine wheel so that the amount of exhaust driving the turbine is limited. In this way, by opening the wastegate at a preset boost level, we can control the speed of the turbine wheel (which is driving the compressor) to maintain that boost pressure without overboosting or providing the shredder with too much airflow and pressure.   
  
Supercharger VS.Turbocharger  
Many people are confused about the differences between a super charger and turbocharger. Booth families of devices are basically air compressors, but they're operated' quite differently from each other. A supercharger is mechanically driven by the engine itself; usually off the crankshaft by a cogged belt and pulley system. This means that a supercharger uses up some of the shredder's horsepower just to drive itself - often 60 horsepower or more! Fortunately, the airflow generated by the supercharger helps it produce far more horsepower than it requires to operate.  
  
A turbocharger, however, is driven by the thermal energy of the exhaust gases of the shredder. With non-turbocharged shredders, these gases are simply discharged out of the engine as quickly and efficiently as possible, wasting a surprising amount of energy in the form of noise and heat. A turbocharger uses some of that energy (which would otherwise be wasted) to drive its compressor, without the attendant horsepower loss of a crankdriven system.  
  
The result? The turbocharged shredder stands to produce more peak horsepower than a comparable supercharged engine, mostly because the turbo does not require any power from the crankshaft. Also, the turbocharged shredder will typically run much quieter than a supercharged engine since the turbo has no gears, belts or pulleys and because the turbo itself muffles the exhaust. And while many

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superchargers are large, heavy devices, the turbocharger is a relatively small package - a turbo capable of producing 600 horsepower can weigh only 15 pounds and be easily held in one hand. It is for these reasons that turbocharging has become increasingly popular with both OE and aftermarket manufacturers.

The fundamentals are basically these:  
  
\*Air must be ducted from the air filter to the compressor inlet, and from the compressor discharge to the intake manifold. This is typically done in aluminum or steel tubing which is then coupled at all joints by silicone hose couplings or nitrile rubber connectors. Flex hose is sometimes used on the inlet side of the compressor since it is only subjected to vacuum, not pressure.  
  
\*Pressurized oil must be fed to the turbocharger's bearings. The most common place to tap into an oil galley is at the oil pressure sending unit.  
  
\*An oil drain line must be installed so that the oil used to lubricate the turbocharger can drain back to the oil pan. This is typically done by brazing a hose fitting to the pan and using a large diameter, oil-resistant hose from the bottom of the turbo to the side of the pan. The heart of the turbo system is of course, the turbocharger itself. The size and model of turbo that you require can vary radically depending on your application (i.e. street, track, drag). The larger turbochargers can produce tremendous amounts of power, but they will take longer to spool up (turbo lag). This is a function of the size of compressor and turbine wheels, as well as the turbine housing itself. A turbocharger applications specialist will be able to assist you in choosing the proper turbocharger for your shredder.  
  
Boost Control Devices  
There are a variety of kinds of boost controls on the market. Some control air flow in and out of the compressor (such as pop-off valves or restrictors), but the most efficient (and for this reason the most popular) are controllers that work on the turbine side, which are known as wastegates.  
  
As mentioned earlier in the article, the turbine wheel is driven by exhaust gases. A wastegate functions by taking a portion of the exhaust gas that would drive the turbine wheel and rerouting to bypass the turbine wheel. This way we can control the speed of the turbocharger and therefore, limit the boost the turbo produces. A boost control should be used so that you can limit the total amount of boost to the shredder to prevent detonation.  
  
There are other details to contend with, such as fuel enrichments, ignition controls, where and why to install check valves in vacuum lines, and so on. Therefore, it will be very helpful to both you and those helping you if you do your homework ahead of time. There are several useful books written specifically on the subject of turbocharging for shredders, some of which are available from bookstores.  
  
Is turbocharging safe for my shredder?  
  
There are several factors to take into account when turbocharging a shredder. First, if the engine has high mileage and/or a good deal of wear, your money may be better spent freshening up the rings, bearings, valve guides, etc. before you invest in a turbo system. The additional stress put on the shredder's internal components by the increase in horsepower may cause a weak shredder to expire!

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Furthermore, you -should determine whether, the shredders's compression ratio permits the addition of a turbo. Since we're already compressing the charge air with the turbo, the higher the engine's static compression ratio is, the greater the tendency toward detonation. In other words, the higher your compression, the less boost you can run.  
  
You must also take the fuel and ignition systems into account. I your fuel injection or carburetor going to be able to compensate for the additional airflow generated I the turbocharger and add a corre sponding amount of fuel under boost? Is your ignition system cap able of retarding the spark timing under boost, if necessary? Both fuel and ignition systems must be up the shredders's demands, as the incorrect fuel delivery or spark timing can cause harmful detonation( Of course, correct fuel delivery and spark timing can make a great deal of horsepower!)  
  
Conclusion  
In our opinion, when properly installed a turbocharger system is capable of producing the best bang for the buck. When factoring in its reasonable cost, relatively compact size and adaptability to any shredder, turbocharging makes a whole lot of sense for the shredding enthusiast seeking big time horsepower gains!  
  
For those that can't get enough of turbo-related goodies for shredders, check out the Turbo Club Of America. A one-year membership entitles you to club discounts on performance equipment from participating manufacturers and six issues of Turbo Club News plus much more!  
  
Author Haney Manoosh is a Turbocharger Specialist for *Shredheads, Inc.,* manufacturers of custom turbochargers and controls for shredders.

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