



How Prolong Works

Users

Industrial & Commercial

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PURPOSE OF THIS REPORT

The purpose of this report is to provide industrial and commercial users of Prolong's lubricant technologies with an explanation of how Prolong works. If your primary goal with regard to your machinery or engines is to improve and maintain greater performance, then **PROLONG** welcomes your thorough investigation of the explanations that follow and invites you to learn why it is important for you to experience Prolong's patented lubricant technology. Your success in solving equipment and engine operating problems depends upon your achieving confidence in the product. We want you to experience **PROLONG** from the engineers point of view and have you understand why we can say Prolong has "No Equal in the World".

THE CHALLENGE

Defining Friction

What is friction? By definition, friction is the resistance that is encountered when two solid surfaces slide or tend to slide over each other. What happens when friction is occurring? Friction breaks down the fluid film of the lubricant between the surfaces; produces wear or metal loss, scuffing, tearing and welding between the metal surfaces; releases energy in the form of heat, which can be adverse to the mechanism and contaminates the lubricants being used.

Overcoming Friction

From the eighth edition of **Marks Standard Handbook for Mechanical Engineers** (published by McGraw-Hill and used by many engineering department of U.S. universities as a standard engineering manual), the following comments are made: "A significant part of the power developed by the expansion of the gas in the cylinders is used for overcoming **friction**,...hence only a certain proportion of the theoretical power output is available as effective (actual) power output". **Kent's Mechanical Engineers' Handbook** part of the Wiley Engineering handbook series and published by John Wiley & Sons, Inc.) states that "**Indicated horsepower** is the power developed in the cylinders. It is greater than the **brake horsepower**, (actual horsepower to the transmission), because of the pumping losses, (the power required to pump air and exhaust gases through the manifolds and cylinders), the friction losses in bearings and other moving parts and the power required to drive accessory equipment (such as air conditioning compressors, alternators, etc.). All such power losses combined...are designated as **friction horsepower**". One of the adverse factors effecting mechanism efficiency is shown below (Figure 1) indicating friction horsepower as compared to mechanical efficiency. As is shown in this graph, friction horsepower increases at a greater rate than the speed increase rate, resulting in a drop in the mechanical efficiency curve. This means that the number one enemy of mechanical efficiency and performance is friction!

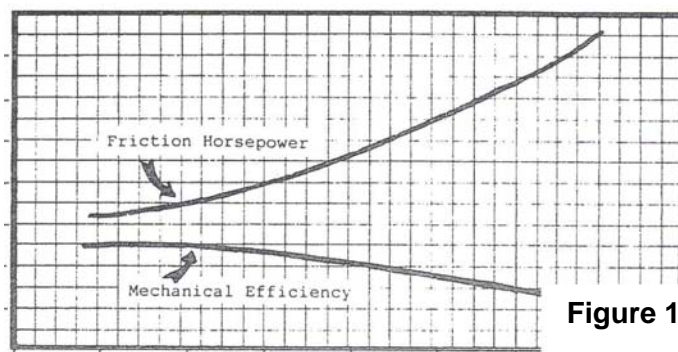


Figure 1.1

Hydrodynamic Lubrication

Moving parts are theoretically designed so that there is sufficient fluid pressure between the moving parts to keep the parts separated by a fluid film. This is called hydrodynamic lubrication (which can be compared to hydroplaning, where under wet road conditions, the water that is sandwiched between the tire and road surface, under certain speeds, separates the tire from the road surface, giving the effect whereby the tire is gliding on a pressurized film of water) and is the ideal lubrication theory.

Real World Operating Conditions

Changes in load and speeds, however, tend to make this film thin, resulting in metal-to-metal contact. When this happens, the following phenomena occur between the metal surfaces: welding, scuffing and/or tearing, or a combination of these. There is a release of heat, which is then transmitted to the lubricant. As the lubricant absorbs heat, it starts to oxidize, resulting in an increase in viscosity (compared to new oil at comparable temperatures), acid, peroxide, carbon residue, sludge, and asphaltene formation. As the oil oxidizes it becomes increasingly corrosive resulting in greater wear of metal surfaces.

Oxidation

Marks Engineering Manual states that "the process of oxidation becomes critical when oil is operating above 150°F (66 °C). It is not uncommon to find lubricating oil sump temperatures in excess of 250°F (121°C). The rate of oxidation doubles for each 18F (8 °C) rise in temperature of the oil above 150F (66 °C)". It is easy to understand how susceptible oil is to oxidation. Also it is important to understand that the viscosity of oil decreases as oil temperatures increase, resulting in loss of ability to form fluid film between the metal surfaces, causing greater metal-to-metal contact. All of the above only serve to prove that friction is the greatest demerit inherent in internal combustion engines and equipment.

Lubricants are required to carry out numerous functions in order to provide adequate lubrication. Crankcase oils, in addition to reducing friction and wear, must keep the engine clean and free from rust and corrosion, must act as a coolant and sealant, and must serve as a hydraulic fluid in an engine with hydraulic valve lifters. The lubricant may function under high temperatures and in the presence of dust, water and other adverse atmospheric conditions as well as with materials formed as a result of incomplete combustion; it must be resistant to oxidation and sludge formation. Therefore, quality lubricants contain many additives and chemical agents in an attempt to meet these demands.

THE SOLUTION

What is PROLONG AFMT+?

It is a highly specialized, high technology lubricant in the classification commonly known as “extreme-pressure property lubricants” (EP agents). Originally, a form of this lubricant was developed for air-cooled aircraft engines and for use in metal removal process with machine tools in the hard-metals class. It is formulated by chemically treating paraffin-based hydrocarbons, which are, within themselves, extremely good lubricants that are capable of withstanding relatively high temperatures and pressures. **PROLONG AFMT+** is specifically engineered to dramatically reduce friction at the point of metal to metal contact.

What does PROLONG AFMT+ actually do?

Prolong AFMT+ performs several functions or activities.

1. PROLONG AFMT+ is carried to the friction surfaces by the lubricant or fluid it is added to. If there is friction occurring, the chemicals implanted in the hydro-carbon molecular chain of this product bond themselves molecularly to the metal surface utilizing the heat and pressure caused by the existing friction. This bond is no thicker than the size of the average hydrocarbon (oil) molecule. It is not a "coating or a formation of a thick "film" but a chemical bond between the surface metal molecules and the chemical components of PROLONG. When this occurs and metal contacts metal, the possibility of welding, tearing and scuffing of the metal surfaces is substantially reduced, and instead, by taking advantage of friction (movement, pressure and heat), the disparities on the metal surface are cooled, folded over and smoothed out. "AFMT+" does not remove metal, but folds over the peaks that are a cause of the metal-to-metal contact. By reducing the possibilities of metal tearing under contact, PROLONG "AFMT+" allows the metal surfaces to work in harmony with each other to quickly smooth the metal surfaces out. Within certain limits, a smoother metal surface produces less friction and less friction means LESS HEAT released and LESS WEAR.
2. At the same time the **AFMT+** is in a beneficial way changing the surface properties of the metal surface, the paraffins' begin to do their part in increasing the "slipperiness" between the surfaces. In effect, they are aiding the host oil in maintaining, as much as possible, the hydrodynamic fluid film between these smoother metal surfaces. Paraffins', under heated conditions, are extremely strong hydrocarbons that are resistant to film shear and vaporization. They are capable of maintaining a state, somewhere between a liquid and a gas under high temperatures and pressures and therefore, more capable as high film strength lubricants. Imagine having a smoother surface protected by, (as a bonus), very strong slippery molecules of paraffins'. Most oil companies remove the majority of waxes from crude oil during the refining process as waxes can congeal at low temperatures restricting the flow of lubricants and can also react negatively with some of the additives and chemical agents added to lubricants. **PROLONG** has found a way to introduce these paraffins' into high temperature systems without creating negative chemical reactions. The net result is more "slippery" oil.

3. **PROLONG “AFMT+”** contains certain proprietary dispersants whose primary functions are to assist in the process of treating the metal by cleaning your engine or other mechanisms. The more contaminants there are in your engine or equipment, such as carbon, sludge, varnishes, etc., the less efficient your engine **performance**. Prolong’s patented formula breaks up these contaminants in your oil, helps remove them from surfaces they have adhered to, and suspends them in the engine oil. By doing so (as you change your oil) you eliminate the sludge that “reduces” the efficiency of your engine.
4. **PROLONG “AFMT+”** contain a powerful and defective blend of anti-oxidants that assist in keeping lubricants free from acid build up. As lubricants are subjected to oil shear, pressure and heat in the presence of oxygen, moisture and chemical by-products, acids begin to form, which then leads to corrosive action on metal parts. By reducing the internal heat generated in engines and equipment via reduced friction, Prolong AFMT+ helps to retard the oxidation process. As a safety measure, we have added these oxidation inhibitors to this unique product to assist and enhance the inhibitors already contained in your host lubricant. It is important to recognize that oxidized oil is a poor lubricant and can actually increase friction, internal to the mechanism due to what is referred to as “fluid friction” or “oil resistance”.

In Summary

To summarize what **PROLONG “AFMT+”** is engineered to do, we would like to draw your attention to the following comments given by **Marks Standard Handbook** for Mechanical Engineers: “The ideal theory for lubrication is that of hydrodynamics. In engineering practice it is usually desirable to design a mechanism to operate with a fluid film separating the surfaces. This hydrodynamic lubrication occurs when the pressures developed in the converging fluid film are sufficient to support the load. Often in actual practice, the regimes of operation under conditions in which hydrodynamic films are too thin, so that surface irregularities interact. For example, when the motion between the surfaces approaches zero (during standard stop), when the severe shock loads are applied (sudden increase/decrease in speed or RPM and when heavy loads are carried by the mechanism), or when viscosity is reduced (due to high temperatures), the complete (or hydrodynamic) lubricant film cannot be maintained between the surfaces, and metal-to-metal contact occurs. Under these incomplete (boundary) lubrication conditions, extreme-pressure (EP) agents are used to provide a measure of safety”. What **Marks Handbook** is stating is that extreme-pressure agents are necessary to the performance of a mechanical system that depends on fluid lubrication.

What **PROLONG** does, during its metal treatment phase, is it takes advantage of the friction produced due to the lack of complete hydrodynamic lubrication. To keep surface irregularities (metal peaks) from tearing or welding, “AFMT+” smoothes them out (folds them over), resulting in a smoother metal surface. When this occurs, friction is reduced, less heat is transferred to the lubricant and equipment efficiency and lifespan is increased. From this point the paraffins’ begin to do their part in enhancing the host oil's ability to maintain complete lubrication on a new, smoother surface. The dispersants and oxidation inhibitors to do their part in cleaning the mechanical systems, and keeping them free from acids and oxides. The result is a longer lived engine, mechanism or critical piece of equipment.

BENEFITS

What are the net benefits from using PROLONG AFMT+?

1. Reduction of “friction horsepower” equals a gain in actual torque applied to the work.
2. Reduction of friction equals a decrease in actual operating temperatures.
3. Reduction of temperatures equals a decrease in actual running temperatures.
4. Reduction of the oxidation rate equals a decrease in the corrosion tendencies within the system.
5. Reduction in friction equals smoother and quieter operation, with less stress to the engine or equipment.
6. Reduction in friction equals greater mechanical efficiency, which could mean better fuel efficiency or lower electrical usage.
7. Reduction in oil temperatures equals a decreased loss of viscosity, which results in better hydrodynamics and less oil consumption.
8. Reduction of friction, and smoother metal surfaces, equals improved seating between piston rings and cylinder walls, less oil consumption, less leakage of combustion by-products from combustion chamber into the lubricant system, less wear of metal surfaces and possibly a decrease in compression loss (less blow-by).
9. Oxidation inhibitors and dispersants keep your system clean and free from contaminants such as carbon, sludge, resins, varnishes, etc.
10. Reduction in oxidation and contaminants equals healthier seals, rings, o-rings and gaskets due to more stable, neutral lubricant conditions.

Metal Treatment

Prolong’s very unique lubricant is not an additive, rather, it is a metal treatment whose main purpose is to help in resolving the root cause of friction, namely the microscopic surface irregularities found on metal surfaces of mechanical components or parts. PROLONG AFMT+ does not contain solid or semi-solid particles such as graphite, molybdenum, lead, copper, ceramics or PTFE. It is not a viscosity enhancer. It is a much-needed advancement in the field of lubrication engineering.

PROLONG AFMT+ has been utilized for over 15 years to achieve substantial operating benefits in diverse and extreme applications including gasoline, diesel and turbine engines, gears, pumps, transmissions, compressors, hydraulic systems, and conveyors, for example.

1. **Internal Combustion Engines** Depending on the distance driven, type of engine and displacement, etc., treatment results could be as follows:
 - a) Vehicle response gives a feeling of being “light” and “quick”.
 - b) Smoother rise in RPM.
 - c) c) Better fuel efficiency.
 - d) Increased top - RPM'S.
 - e) Increased idle RPM'S.
 - f) Less decrease in speed going up a hill at a constant accelerator pressure. Many users have claimed they could now negotiate hills without down-shifting.
 - g) Quieter and smoother engine.
 - h) Overall improved engine response and quicker acceleration.
 - i) Easier cold weather starting than previously experienced.
2. **Manual Transmissions.** One treatment should last for 1-2 years, or according to service instructions for changing transmission oil. If the transmission oil is changed, another treatment should be made with **PROLONG**.

Treatment results should include:

- a) Gears should shift more smoothly.
- b) Before engine is started, shift gears, compare feeling before and after PROLONG is added, the “catching or corners” feeling should have been reduced as you shift through the gears. In other words, shifting is quicker and without “grabbing”.
Caution: PROLONG “AFMT+” will not restore worn syncrorings and is not intended to protect against “abusive” shifting.
- c) Less vibration of the gear shift might also be evident.
- d) Less torque loss in transmission translates into an increase in actual power to drive train.

3. **Automatic Transmission:** - 6% mix ratio, by volume, depending on the type of ATF and transmission. Contrary to what you might think, the “**AFMT+**” will not cause “slippage” in either manual or automatic transmissions. On the contrary, there is a smoother and improved gear change.

Treatment results could include:

- a) A very slight decrease in viscosity, (refer to Rheological report of 1986.)
 - b) Reduced transmission leaks by keeping seals soft and pliable:
 - c) **Caution:** PROLONG “AFMT+” will not restore seals already hardened and cracked.
 - d) Smoother, faster shifting by keeping the valve assembly clean.
 - e) Reduction of transmission gear howl and vibration.
 - f) Keep in mind that the major cause of transmission failure is friction and heat. PROLONG “AFMT+” will assist in the protection of the automatic transmission from these harmful elements and reducing the heat build up which destroys the effectiveness of the fluid.
4. **Differential, Gears and Transfer Cases:** Differentials are subjected to considerable heat and friction due to the loads and stress of hypoid gears. Many hypoid gear oils contain small amounts of “extreme-pressure” (E.P.) agents. However, the amount is not sufficiently noticeable. Laboratory and actual use tests have proven that **PROLONG AFMT+** could decrease internal oil temperatures in differentials anywhere from 5-20° C (41-68° F), which if achieved through traditional engineering means, would require a tremendous investment in engineering design and super-finishing of gear-teeth surfaces and tempering.

Treatment results should include:

- a) Reduction in operating temperatures.
 - b) Reduction in differential noise (gear howl)
5. **Manual/Power Steering Units:** Mix ratio 611/0 by volume.

Treatment results should include:

- a) Easier steering maneuvers.
 - b) Increased pump flow in worn or dirty power steering units.
6. **Wheel Bearings/Universal Joints:** Use 29 ml (1 oz V.S.) per bearing or joint. Their optimum life can be increased with smoother rotation through reduction of heat and friction. **Caution:** Not intended for bearings that are gauged or seized. However, in certain cases, the addition of **PROLONG** could keep them running, for a short period, until replacement can be promptly made.

7. **Air-Conditioner Compressors:** Mix ratio, 311/0 by volume or 14 ml per liter or 1 oz per U.S. qt. whichever is less. Air conditioner compressors are a tremendous source of power-draw on engines. **PROLONG “AFMT+”** can be added with the coolant gas on the low pressure side. Before adding, please check with your service technician for assistance.

Treatment results should include:

- a) Up to 10% increase in P.S.I.G.
 - b) Temperature drops of 15 – 10 °C (59-68 °F).
 - c) Up to 20% drop in amperage draw.
 - d) Quieter, smoother running compressor and less evidence of compressor cycling.
 - e) Less evidence in up and down vehicle engine RPM'S.
8. **Turbo-Chargers:** Mix ratio 6% by volume to engine oil. Turbos have tremendous problems with high RPM'S, the lubricants tend to oxidize quite quickly. When the engine is turned off while the turbines are still rotating, the drop in oil pressure tends to leave the bearings (especially thrust areas) isolated from oil flow, which causes the small amount of oil left around the shaft and bearings to carbonize leaving carbon and sludge residue. This leads to poor heat transfer, greater acceleration of wear on those bearings due to the residue's abrasive action. This can lead to early seizure of the bearings and surrounding metal. **PROLONG “AFMT+”** can aid in reduced scaling and build-up. Also, the **“AFMT+”** tends to aid in dry, metal-to-metal situations for short periods of time. As a result, **PROLONG “AFMT+”** could be a tremendous benefit to Turbo-chargers.

Treatment results should include:

- a) Reduction of heat caused by friction.
- b) Protection of thrust and primary bearings.
- c) Retard carbonization and oxidation of lubricant in and around heat-stressed bearings.
- d) Help to break-down deposits of carbon, on surfaces where this residue is already evident.

Caution: In the case of a very dirty engine, the dispersion of contaminants could cause blockage in filters, oil parts or grooves. Care should be given to monitoring as to what degree the oil contains contaminant particles after the addition of **PROLONG “AFMT+”**. Keep in mind that it is better to remove these contaminants than to have them in the engine, therefore, **PROLONG “AFMT+”** is performing an additional “service” to your Turbo-Charger.

GENERAL WORDS OF CAUTION:

- A. Please keep in mind that **PROLONG "AFMT+"** has been especially developed for today's high-performance engines and mechanisms: For this reason, we have given the **PROLONG "AFMT+"** a stronger extreme-pressure (E.P.) chemical package. Therefore, we have found that our **standard** mix ratio is 6% by volume to the lubricant. In some cases, it might be necessary to increase the mix percentage to as high as 15%, depending on the conditions. If satisfactory results are not achieved, check with your area manager for recommendations. (Tests are shown in the manual for industrial use of 10 and 15% by volume).
- B. **PROLONG "AFMT+"** is not a cure-all for mechanical problems. In some cases, **PROLONG "AFMT+"** can aid in reducing noise levels for scarred or worn surfaces, but this benefit cannot be guaranteed.
- C. **PROLONG "AFMT+"** can be added to most petroleum, mineral and synthetic lubricants. It is not intended to be added to vegetable or animal based oils for any reason as it could result in increased wear. If there is any doubt as to the type of oil in the mechanism, avoid adding **PROLONG "AFMT+"** until it can be verified that the oil is petroleum, mineral or synthetic based. **Remember: No** vegetable or animal based oils. Regional Manager and Area Manager have access to **PROLONG** Rheological Report of 1986.
- D. In some cases, the addition of **PROLONG "AFMT+"** could result in increased idling RPM. If this should occur, wait for 500 - 700 kms (300-450 miles) of driving after the product has been added, then readjust idling RPM, to the manufacturer's recommended setting to maximize fuel economy.
- E. For any application, where you have any questions or doubts, please feel free to contact your area manager. Common sense is very important in considering application for **PROLONG "AFMT+"**.

We are confident that the customer will be satisfied with **PROLONG "AFMT+"**. This unique specially developed proven product can be a tremendous boost to the efficiency of your automobile.

TECHNICAL RESEARCH

S I N T E F - The Foundation for Scientific and Industrial Research at the Norwegian Institute of Technology. SINTEF works extensively with the major oil companies of the North Sea oil operations including - Shell Oil, Mobil, State Oil, Phillips etc.

PROLONG of Europe contracted S I N T E F to test our “**AFMT+**” on Steel/Steel and Steel/Bronze Metals. Friction, Temperature and Wear studies were to be completed. Four different oils were selected by S I N T E F for comparisons. Two synthetic oils, one mineral engine oil and a gear oil were used. (Mineral oils being the base for engine oils.) Summary of a 70 page report was as follows: (STF18 - F87013 & STF18 - F87006)

The maximum results occurred when 10-15% PROLONG mixtures were used. PROLONG was carried to the metal by all four oils chosen. Reduction in wear was the greatest single benefit. Tests were carried out at ratios from 5% to 15%.*

Results from 110 tests on each material were as follows:

REDUCTION IN STEEL/STEEL AVERAGES:

20% Co-efficient of Friction

55% Wear

30% Temperature

REDUCTION IN STEEL/BRONZE AVERAGES:

Less dramatic Reduction in the Coefficient of Friction or Temperature. However, **Wear Reduction of 45% Occurred.**

- * Ratios of up to 15% are recommended for heavy industrial use. The ratios for general use are based on both economics and performance. Having analyzed these and other reports, **PROLONG** recommends a 6-10% for general usage. Refer to guide and spec sheets.

S I N T E F S U M M A R Y

This report deals with a friction and wear study of the **PROLONG "AFMT+"** for lubricating oils. A Block on Ring Machine has been used for the test.

Typical test data have been selected to secure a boundary lubrication.

Material combinations like steel/steel and bronze/steel have been tested. Oils used for the test have been mineral engine oil, 2 different synthetic engine oils and gear oil.

Approximately 15% PROLONG mix-up in the oil is found to give the best result - in average about 50% wear reduction. Except for an increase in the steel to steel friction in gear oil and in the after all low friction in bronze/steel contact, a considerable reduction of friction and temperature was found.

Because of the positive results from this test, further work is proposed to continue the study, especially the effect on viscosity and the long term effect on real machines. **PROLONG's** long term goals are to continue to keep up with new technology by continuing such research.

The following chart outlines the type of Lubricant, the percentage of **PROLONG "Anti Friction Metal Treatment"** used and the percent of reduction of:

FRICITION (20% drop) average
 TEMPERATURE (20% drop) average
 WEAR (47.5% drop) average

Lub. oil	Friction		Temperature		Wear		070 PROLONG
	Mineral	Synthetic Multigrade	Mineral	Synthetic Multigrade	Mineral	Synthetic Multigrade	
Multigrade engine oil	%	%	%	%	%	%	10
	- 10,6 - 14,9	- 10,6 - 48,9	- 26,S - 36	- 17 - 38,7	- 60,6 - 78,8	- 40,3 - 50,7	15
Multigrade Synthetic engine oil no. 2		- 16,7 - 51,6		- 21,3 - 30,3		- 29,8 - 53,1	10 IS
EP gear oil	+ 6,3		- 15,3		- 34,8		10
	+ 6,3		- 19,5		- 48,S		IS
Average value from 65 STEEL STEEL tests		- 20		- 20		- 40	10
		- 20		- 20		- 55	15

Figure 2

Table 1 Results from STEEL/STEEL tests

PRODUCTS

A. AFMT+ (“AFMT+”)

AFMT+ is a unique product specifically developed *for* its extreme pressure lubricating qualities. It treats the metal, not the oil. The oil is only a carrier that delivers the metal treatment to the moving parts. Most competitor additives are drained with the oil change and must be replaced repeatedly. This is not the case with **PROLONG** AFMT+ as it stays with the metal. The following are some of its applications and benefits:

Application

Internal Combustion Engines
Automatic/Manual Transmissions
Diesel Equipment
Machine Tools - Metal Workshops
Marine - Mining – Smelters
Paper Mills
Air Compressors
Hydraulic systems

Trucks-Buses
Pumps
Differentials
Bearing Journals
Automotive-Railways
Refineries - Smelters
Stamping Dies & Presses

Benefits

1. Increased Compression
2. Reduction in oil consumption
3. Reduced wear and drag
4. Reduction in operating temperatures
5. Energy conservation due to less friction
6. Less required maintenance
7. Extended equipment life
8. Quicker cold engine starts
9. Seals and coats metal surfaces without build-up as it contains no solids and will not alter tolerances
10. Reduced oxidation and corrosion
11. Metal adhesion reduction in stamping dies.

Test Results

PROLONG AFMT+ has been tested with a number of major brand oils. Results show excellent compatibility with the oils and some of the benefits are as follows:

1. Complete blending with petroleum and synthetic oils.
2. Possible reduction in friction (up to) 51.6% - synthetic oil (Refer to Fig. 1-4).
3. Energy conservation due to reduction in coefficient of friction.
4. Reduction of heat, oxidation and acidity resulting in extended life of oil.

PROLONG AFMT+ is based on petroleum derivatives. It is intended to be used in extreme pressure lubrication applications. **PROLONG** products do not contain any solid body particles.

Additive Classification

Proprietary extreme pressure agent and lubricant.

B. SPL100® Penetrant and Lubricant

The **PROLONG** Penetrant, branded SPL100® also contains the very unique AFMT+ as part of the specially blended qualities to make this truly an excellent product, with results and performance unequalled in the industry. Because of these redeeming qualities, customers are amazed that “a little goes a long way”. Some of the applications and benefits are as follows:

Application

Hinges	Drills bits	Fishing reels
Guns	Rusty bolts	Electric tools
Garden tools	Bicycles	Air tools
Locks	Chains	Tools
Screw jacks	Chain falls	Valves
Electric connectors	Auto distributors	Salt protection

Benefits

Contains **PROLONG “AFMT+”**. Fast penetration - Breaks down rust and corrosion - Lubricates as it penetrates - Cleans electrical corrosion - Retards electrical corrosion - Treats metal with E.P. Lubricant - Resistant to most acids and caustics - Prevents rust and corrosion after use (such as battery terminals, electric tools and motors).

C. **Prolong EP-2 Multi-Purpose Grease**

This is **PROLONG's** extreme pressure grease product. This product contains the very unique metal treatment AFMT+ and lends itself perfectly to its formulation and use. A brief listing of applications and benefits are as follows:

PROLONG grease is specially formulated and manufactured by a major oil company with utmost quality control. **PROLONG's** grease shows evidence as being one of the best extreme pressure greases on the market.

Application

1. Ball Joints
2. Electric Motor Bearings
3. Roller bearing applications
4. Bearings - roller, ball or shell under extreme pressure
5. Wheel bearings
6. Bearings subjected to extreme heat or cold
7. Bearings subjected to salt or fresh water.

Benefits

Prolong EP-2 Multi-Purpose Grease contains **PROLONG "AFMT+"** to reduce:

- a) Heat
- b) Metal wear
- c) Corrosion
- d) Shearing
- e) Oxidation

Classification

Extreme Pressure – EP-2 Grease. (see stat and safety data report).

STATE OF THE INDUSTRY AND COMPETITION

Oil technologies are not a new concept; they have been on the market for a number of years. Some of the products work effectively while others can do damage to an engine or to equipment.

PROLONG “AFMT+” is formulated in such a way that it is compatible with all petroleum products as well as most synthetic oils and contain no harmful solid particles, such as lead, zinc, Teflon, etc. **PROLONG AFMT+** is also non-acidic; therefore, it reduces wear and saves energy without being harmful in any way. As the product is used and compared to other similar products, the benefits of **PROLONG AFMT+** establishes **PROLONG** as a technological leader.

WARRANTIES

There is always the question concerning the possible “threat” of cancellation of warranties by the manufacturers should non factory certified products be used in their automobiles, equipment, etc.

Summation

It is not a simple matter for manufacturers to just void a warranty without sufficient and real evidence to justify their actions. It is for this reason that **PROLONG** carries product liability insurance should the manufacturer prove that the use of a **PROLONG** product did, in fact, cause damage to the respective machinery. The use of **PROLONG** products will, in fact, be covered by either the manufacturer's warranty or by **PROLONG'S** liability insurance. In fifteen years of doing business, Prolong has never had a claim presented based upon product liability.

SUMMARY

PROLONG, through extensive research such as Rheological Evaluations, has established that the **PROLONG AFMT+** is fully compatible with commonly used engine and gear oil. **PROLONG AFMT+** is tested on a regular basis with new oils as they appear on the market including both petroleum and synthetic oils. These tests have been concluded with great success.

Figure 1-9

5 LB.
PULL
WITH
MOTOR
OIL.



25 LB.
PULL
WITH
6% PROLONG
METAL TREATMENT

