

MORE GOOD NEWS FROM THE PRODUCTION FRONT

“Know-How”

SAVES MANPOWER, MATERIALS AND MONEY—AND GETS THE JOB DONE!

Fortunately for All Of Us American Industry Has This “Know-How”

THEY said that America was unprepared for war and could not arm in time. But they overlooked our “secret weapon”—industrial “know-how.”

They forgot that in America free enterprise had for years been encouraging—stimulating—urging men to learn how to make things better and better—in greater volume—at constantly lower costs.

Now that the needs of peace have given way to the demands

of war—now that “Victory is our business”—our training in this mass production is making itself felt.


And today Victory is your business—just as it is ours.

And as a “stockholder” in Fighting America you want to know how well your business is operating; whether the experience and skills developed under peaceful American free enterprise are proving valuable now; whether we have acquired an ability—a “know-how”—which is equal to the demands of total war.


So one organization gives you herein a few of the many examples of how American “know-how” is getting the job done—is saving manpower, materials and hundreds of millions of dollars!

These are some of the things being done to avoid the tragedy of “too little and too late”—to make sure that your boy at the front has every advantage of superior equipment and protection.

An EXAMPLE —HOW GM APPLIES MASS-PRODUCTION TECHNIQUE TO MACHINE GUNS



This story of quantity production methods in the manufacture of one type of machine gun illustrates a principle exemplified throughout General Motors' production for war. Design improvements and production short-cuts have been made possible by the close cooperation and assistance of original manufacturers, machine tool producers and the Army Ordnance Department.

<p>STEEL REPLACES ALUMINUM</p> <p>Aeroproducts Division is now building stronger, lighter propellers by substituting hollow steel construction for solid aluminum blades.</p> <p>Saving—100 to 200 lb. of aluminum per propeller. Saving—75 lb. in weight of complete assembly</p>	<p>SPEEDING ENGINE PRODUCTION</p> <p>At Allison Division, new multiple-spindle drills perform 14 lapping operations simultaneously, superseding single radial drill operation in these liquid-cooled aircraft engines. For this operation:</p> <p>Time Reduced—80% Production Up—393% Machines released for other work</p>	<p>SUBCONTRACTING</p> <p>Of 132 parts in an aircraft cannon, Oldsmobile, as prime contractor, builds three basic parts. Production of the remaining 129 parts is spread among 53 subcontractors, working under GM direction, who already had the necessary manufacturing equipment.</p>	<p>REDESIGNING REDUCES COST</p> <p>As redesigned by Pontiac, shoulder rests for Oerlikon guns have been made simpler and less expensive. Shoulder rests are now completely adjustable for every size gunner. This improvement reduced cost per gun \$45.00</p>																																												
<p>NEW MACHINES DO NEW JOBS</p> <p>Cadillac craftsmen designed completely new machines for producing this complex part, a supercharger rotor vane, effecting important savings in time and material.</p> <p>Time per piece reduced from 125 man-hours to 10. Material saved, 496,000 lb. per year</p>	<p>CASTINGS FOR FORGINGS</p> <p>“ArmaSteel” castings supplant steel forgings, save large quantities of vital materials and many man-hours of machining time because there is less excess metal to be removed. Development of GM Research Laboratories and Saginaw Malleable Iron Division.</p>	<p>BIG SAVINGS FROM SMALL ITEMS</p> <p>In tank manufacture at Fisher Body, attaching a 3-inch piece of common steel for electrical connection at the end of each welding rod is saving an important amount of critical welding material.</p>	<p>TWELVE TIMES AS FAST</p> <p>At Buick, a newly designed electric welding machine makes it possible to speed up welding of Diesel engine crankshaft balancers from 3 to 36 per hour.</p>																																												
<p>SUBSTITUTION SAVES MATERIALS</p> <p>Previously drawn from brass and then nickel- and silver-plated, headlamp reflectors are now drawn at Guide Lamp Division from less critical steel, enameled and coated with vaporized aluminum. Metal per 100,000 vehicles:</p> <table style="font-size: small;"> <tr> <td>OLD TYPE</td> <td>NEW TYPE</td> </tr> <tr> <td>65,000 lb. Copper</td> <td>78,000 lb. Steel</td> </tr> <tr> <td>32,000 " Zinc</td> <td>5 lb. Aluminum</td> </tr> <tr> <td>275 " Nickel</td> <td></td> </tr> <tr> <td>160 " Silver</td> <td></td> </tr> </table>	OLD TYPE	NEW TYPE	65,000 lb. Copper	78,000 lb. Steel	32,000 " Zinc	5 lb. Aluminum	275 " Nickel		160 " Silver		<p>WEIGHS 1/5 AS MUCH</p> <p>Developed by General Motors Research Laboratories and produced by Electro-Motive Division, this newly designed “Pancake” Diesel engine weighs 1/5 as much as and takes only 1/3 of the space of any previous ocean duty Diesel of the same horsepower. Helps provide new Navy sub chasers with:</p> <p>Increased speed Longer cruising radius</p>	<p>CONSERVING VITAL MATERIALS</p> <p>Chevrolet engineering ingenuity has developed satisfactory substitutes resulting in the following critical materials saved per 100,000 military vehicles:</p> <table style="font-size: small;"> <tr> <td>5,000,000 lb. Rubber</td> <td></td> </tr> <tr> <td>1,200,000 " Nickel</td> <td></td> </tr> <tr> <td>500,000 " Copper</td> <td></td> </tr> <tr> <td>200,000 " Chrome</td> <td></td> </tr> <tr> <td>125,000 lb. Latex</td> <td>70,000 lb. Tin</td> </tr> </table>	5,000,000 lb. Rubber		1,200,000 " Nickel		500,000 " Copper		200,000 " Chrome		125,000 lb. Latex	70,000 lb. Tin	<p>GM DELIVERIES OF WAR MATERIALS</p>  <p>[MILLIONS OF DOLLARS]</p> <table style="font-size: x-small;"> <tr> <th>Year</th> <th>1st</th> <th>2nd</th> <th>3rd</th> <th>4th</th> <th>1st</th> <th>2nd</th> <th>3rd</th> </tr> <tr> <td>1941</td> <td>~50</td> <td>~100</td> <td>~150</td> <td>~200</td> <td>~350</td> <td>~450</td> <td>~550</td> </tr> <tr> <td>1942</td> <td>~50</td> <td>~100</td> <td>~150</td> <td>~200</td> <td>~350</td> <td>~450</td> <td>~550</td> </tr> </table>	Year	1st	2nd	3rd	4th	1st	2nd	3rd	1941	~50	~100	~150	~200	~350	~450	~550	1942	~50	~100	~150	~200	~350	~450	~550
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1. INCREASING OUTPUT

Many new processes, new tools and design changes have made possible double the output in the same man-hours. Manufacturing capacity and manpower were released for additional vital war tasks.

2. REDUCING COST

Production short-cuts, material savings and expanding output have reduced the original cost by half, with consequent important savings in the nation's expenditure for war material.

3. RAISING QUALITY

Design changes for quantity production have likewise raised quality. Many of the more than 200 changes have helped to make possible superior performance, added durability.

4. CONSERVING MATERIALS

Many thousands of pounds of vital materials were conserved through better processing and the substitution of less critical materials. The number of special steels was cut from 44 to 15.

General Motors Employees Set New Record

Although 37,892 General Motors employees are in the armed forces, employment for November of this year in the United States was 20.2% above that of the same period in 1941. Payrolls were up 51.0%. Average hours of work were up 17.3%.

From their earnings, General Motors men and women are purchasing War Bonds in ever-increasing volume.

IT TAKES A LOT OF MONEY TO WIN A WAR—BUY WAR BONDS AND STAMPS

EVERYBODY Buy More War Bonds and Stamps

It's your boys—AND YOU!—who must win this war. They, with their daring and their fighting ability; you, backing them up with your money that must buy them their guns and ammunition, planes and tanks, equipment and supplies.

Don't fall the boys! Buy War Bonds and Stamps for all you're worth—the way they fight!

GENERAL MOTORS

“Victory Is Our Business!”