

ENGINEERING

Filters Rout Dust Enemy

Many devices used to sift dirt from air of war plants. Could cause havoc in explosives factory or lower quality of military equipment. Protects health.

► FILTERED AIR is proving industry's answer to the problem of how to control our tireless enemy, dust, which could slow the output of war materials and impair their quality. Electrostatic filters that draw dust particles from the air, much as a magnet draws iron filings, are used in plants manufacturing bomb sights, and in naval air stations where the sights are overhauled and repaired. They clean the air in laboratories where vital war research is being carried on.

Allowed to carry on their destructive work unchecked, tiny particles of dust could ruin the accuracy of our gun and bomb sights; shorten the life of engines and motors of ships, tanks and planes; cause catastrophic explosions in ordnance plants; seriously impair the efficiency of our vital communications system. No organization of human fifth columnists could do a more complete wrecking job.

Among the largest installations of air filters—but of a different type—are those in the paint spray enclosures of two huge bomber assembly plants in the Southwest. All the air that enters the paint-spray buildings passes through mats composed of glass fibers coated with a dust-catching adhesive. In each of the buildings 3,648 filters are employed to strain the dust out of the air.

In ordnance plants, similar glass fiber

filters are employed to collect from the air particles of TNT and other explosive dusts created by the manufacturing operations. If allowed to accumulate on the walls, floors or machines, the particles would eventually create a hazard that could result in great loss of life and wreckage of the plants.

Most of the nation's automatic telephone exchanges, vital to war communications, depend on glass fiber air filters to clean the air. The efficient operation of the exchanges is contingent upon the establishment of close contacts between small metal parts. If dust accumulates on these parts it acts as an insulator, and can either cause complete failure to operate, an epidemic of wrong numbers, or static that interferes with conversation.

In scores of plants, glass fiber filters are employed to collect dusts created by grinding processes, eliminating a hazard to the health of workers in the plant.

Planes, tanks, trucks and other military equipment are being equipped with glass fiber air filters to prevent the admission of abrasive dusts.

If dust enters the carburetor of an internal combustion engine during operation, it works its way into the lubrication system where it acts as an abrasive to shorten the life of the motor.

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ENGINEERING

Nazis Like U. S. Trucks

► THE GERMAN high command in North Africa has bestowed the highest possible compliment on American-made trucks, it has been disclosed (*Military Engineer*, Feb.). A bulletin found on a captured Nazi officer in Libya gave orders that captured British trucks were to be used for all reconnaissance work in the desert instead of German or Italian trucks, because "the German trucks stick in the sand too often." The writer, Lt. Col. C. Alfred Campbell, adds: "Most of the 'British' trucks operating in Libya are of American origin."

German and Italian truck manufac-

turers, Col. Campbell states, tend to build big units with powerful engines, trusting to sheer horsepower to bull their way through. This of course gets them into difficulties whenever the going gets soft; they are no more adapted to work in sandy terrain than elephants are.

Light and medium American-built trucks, on the other hand, take to sandy country like the Arabs' own camels. They don't try to buck their way through the sand—they go over it.

A major factor in the American trucks' success in the desert is the all-wheel drive, now common on commercial as

well as military vehicles. Ability to put power against the ground with "all fours" enables our trucks to pull out of holes, or over humps, that would stall machines with rear-wheel drive only.

All-wheel drive is not a new thing, Col. Campbell points out. Four-wheel-drive trucks were in use during the first World War; but they had a number of faults that prevented their full success. These have since been overcome, and the modern all-wheel-drive truck is now standard.

Col. Campbell describes a conversion kit which was used commercially to turn rear-wheel-drive Ford trucks into four-wheelers. This was pioneered about eight years ago, and was so much of a success, especially in Western oil and timber regions, that when the present war emergency began to develop, the auto engineers had the "know-how" that presently gave birth to the unstoppable jeeps and peeps of today's armies.

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PUBLIC HEALTH

Tuberculosis May Prove Post-War Plague

► TUBERCULOSIS will become a plague affecting approximately 10,000,000 persons in Europe after the war, Dr. Robert E. Plunkett, general superintendent of tuberculosis hospitals for the New York State Department of Health, predicts in a report to the Bulletin of the National Tuberculosis Association.

A three-point program by which the United States could help check this anticipated plague was outlined by Dr. Plunkett as follows:

1. Governmental and private agencies dealing with tuberculosis in this country can appraise the problem and develop the control program, for which public or private funds or both could be used.

2. Many American physicians and X-ray technicians who are gaining tuberculosis experience and training with the armed forces during the war could be available for post-war service abroad, since not all of them could find work in the anti-tuberculosis fight here.

3. Some of the vast amount of X-ray equipment acquired by the armed forces for chest X-raying of men entering the services could be assigned or contributed to foreign service since not all of it will be needed at home after the war.

Tuberculosis is "the delayed action bomb of the diseases of war," Dr. Plunkett said in urging control plans.

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