January, 1944

Abstracts from the Scientific and Technical Press

(No. 118. November, 1943)

AND

Titles and References of Articles and Papers Selected from Publications

(Reviewed by R.T.P.3)

TOGETHER WITH

List of Selected Translations

(No. 64)

London :
"THE ROYAL AERONAUTICAL SOCIETY"
with which is incorporated "The Institution of Aeronautical Engineers"
4, Hamilton Place, W.1
Telephone : Grosvenor 3515 (3 lines)

ABSTRACTS FROM THE SCIENTIFIC AND TECHNICAL PRESS.

Issued by the

Directorates of Scientific Research and Technical Development, Air Ministry.

(Prepared by R.T.P.3.)

No. 118. NOVEMBER, 1943.

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Special Addition Agent Steels. (R. B. Schenck, S.A.E. Journal, Vol. 51, No. 11, Nov., 1943, Transactions, pp. 385-393.) (118/1 U.S.A.)

The term " special addition agent " refers to a group of ferro alloys containing boron which have the property of markedly increasing the hardenability of many steels.

NOTE 1.

The composition of some of these special addition agents or needlers intensifiers (needling agents) is given below:—

TABLE I.

Alloy Desig.	Al.	B.	Ca.	Mn.	Si.	Ti.	Zn.	Fe.
1	7	·5	10	—	35/40	10	4	Rest
2	—	10/12	—	—	3	—	—	,,
3	10/20	$\frac{1}{2}$	—	15/25	20/30	10/20	—	,,
4	13	·5	—	8	—	20	4	,,
5	—	$\frac{1}{6}$	—	—	40/45	—	—	,,

The amount of additive required is very small (2 to 4.16 per ton of ingot), the exact quantity and nature depending on the composition of the steel and the degree of deoxidation. The improvement is quite phenomenal, an ordinary carbon steel being turned into the equivalent of a low alloy steel, whilst the treated low alloy behaves in many respects like a high alloy steel. Thus important amounts of nickel, chromium and molybdenum can be saved, the machinability in all cases being similar to that of ordinary carbon steel.

The following table gives the results obtained with S.A.E. 1,024 steel containing 1.53 per cent. Mn. and .25 per cent. C. The additive agent is stated to contain Va., but its composition is not given.

	Untreated	Treated (4lb. per ton)
Yield point	104,300	206,300
Tensile	119,900	215,600
Elongation (2 m.)	19.3	13.8
Reduction in area	60.7	56.60
P value (1)	96.82	111.04
Hardenability index (2)	J-40-2.8	J-40-9.3
Critical diameter (oil quenched) (1) (3) ...	$\frac{1}{2}$ m.	$1\frac{5}{8}$ m.

(1) *P* value is a figure of merit for tensile properties and is defined as

$$P=\frac{(T+6R)}{5}$$

$$\text{where } T=\frac{(\text{Tensile in psi})}{1{,}000}$$

R = reduction in area percentage.

$P=100$ is a fair average for alloy steels, fully quenched and drawn at 900-1,000°F. Higher values denote superior tensile properties. By specifying minimum tensile and *P* values, the relationship between strength and ductability is expressed by a single number.

(2) The hardenability index (last two figures) denotes the distance in 16ths of an inch from the end of the standard end quench test bar at which the Rockwell C. hardness (first two figures of code) is reached (S.A.E., 1943 Handbook, p. 323). Thus J-40-2.8 denotes that Rockwell C. 40 is found at 2.8 sixteenths from the end. At larger distances, the hardness would be less. For the treated steel the hardenability index is J-40-9.3, *i.e.*, Rockwell C. 40 hardness is found at 9.3 sixteenths of an inch from the end. Now at this end section, the hardness of both untreated and treated sample is the same (in this case 48 C), the hardness of the treated sample falls off less rapidly with end distance, *i.e.*, the hardenability has been increased.

(3) Critical diameter (1) (oil or water quenched) denotes the (*P*) maximum diameter of a round bar which will harden at the centre to the Rockwell C. hardness of the hardenability index (in this case Rockwell C. 40).

For the above tests, both the tensile and hardenability bars were annealed at 1,650°F. and oil quenched at 1,600°F., the tensile bars being drawn at 450°F.

The author gives further test results on a series of .2 per cent. C. and .4 per cent. C. steels with a manganese content varying from .5 to 1.75 per cent., some of the specimens containing appreciable quantities of Ni. and Cr. (1-3 per cent.). Unfortunately, the composition of the additive is only given in two cases (Nos. 1 and 4, Table I).

In each case the additive treatment resulted in a very marked improvement in the hardenability of its material, coupled with increased mechanical strength when in the quenched and drawn state.

For any other state, however, the treatment may reduce the mechanical strength.

The very large increase in tensile noted for S.A.E. 1,024 is exceptional, the improvement in the case of the other steel tested being only of the order of 10-30 per cent.

Although the commercial application of additive treatment in the U.S.A. only dates from 1938, the Buick Motor Car Company has already turned out thousands of cars containing vital parts made of treated manganese steel (axles, gears, transmission shafts, steering knuckles and arms, etc.). The results have been entirely satisfactory.

A co-operative research programme is now in progress for the co-ordination of further laboratory and service tests on a series of nine basic open hearth steels.

The large amount of experimental work already available is collected in a report by the American Iron and Steel Institute, entitled "Special Alloy Addition Agents," November, 1942.

In conclusion, it should be pointed out that uniform melting is of great importance in the use of additive agents. The optimum quantity should be determined in each case and added in the ladle. (Ingot mould addition is also possible and greatly facilitates experimental work.)

Smaller additions than the optimum may be extremely beneficial, but there is some doubt as to the uniformity of action. Increasing the amount beyond the optimum tends to lower mechanical properties.

In spite of the exacting requirements, American steel mills have demonstrated their ability to melt heat after heat with as good a uniformity as for untreated steels.

Aluminium Alloy Forging Dies. (R. F. Duff, S.A.E. Journal, Vol. 51, No. 11, Nov., 1943, pp. 23-24.) (118/2 U.S.A.)

In the mass production of aluminium alloy forgings made of 14S extruded stock, the formation of blisters on the surface of the finished product has led to the rejection of an appreciable number of parts.

It was at first thought that the trouble was associated with the use of extrusions as stock material, but investigations carried out by the S.A.E. War Engineering Board has shown that the blistering is also found in forgings made of standard rolled stock if the metal is worked too rapidly (excessive heat generated by friction in the die).

With extruded stock, the rate of deformation has therefore to be decreased and this can easily be brought about by the addition of fullers to the dies, lighter hammering, proper use of lubricants and good die finish. With these precautions, satisfactory forgings are possible, provided the original 14S material adheres to specification and especially does not contain an undue amount of silicon. A satisfactory chemical composition is given below.

Si.	Cu.	Mn.	Mg.	Al.
.9 per cent.	4.40 per cent.	.80 per cent.	.40 per cent.	Rest.

The impurities in the above are controlled by Federal Specification (QQ/A-367 C). Leading producers of 14S alloy have agreed to control the composition of this material to the above standard for both rolled and extruded stock.

A satisfactory lubricant is a mixture of 50 per cent. lard oil plus 50 per cent. distillate and is applied to the die surface either by spray, swab or air blast. A small amount of graphite is occasionally added. It is interesting to note that a common cause of die failure are cracks resulting from the explosion of the die lubricant in the corners and angles of the impressions.

Die finish is of very great importance since it affects both the life of the die and the quality of the product. All angular irregular surfaces must be avoided and the final polishing marks must be in the direction of the flow of the forged material. The finish impression should be placed as near the centre of the die as possible and the impression cut so that the metal flow of the forging is at right angles to the grain of the die.

The thickness of the flash must be such as not to restrict the flow of material. Very thin flashes are more economically and rapidly trimmed, but for best die life flashing of about .04 inch are recommended.

A die should be used for as long a run as possible (5-10,000 pieces).

If the die is taken down and reset after short runs, the life is appreciably shortened, even if every care is taken in the resetting. The die material for aluminium alloy forgings is usually the same as employed in the production of steel forgings. It is used in the heat treated condition with a hardness ranging from 43 to 63 Shore, depending on depth of impression. Stress relief after a period of use is stated to be beneficial.

It is interesting to note that the life of the normal steel die is appreciably shorter when turning out aluminium alloy forgings than when making steel forgings. It is possible, however, that a new die material specially suited to the peculiarities of aluminium forgings may be developed in the near future.

In conclusion, it should be emphasised that in die forging the human element plays a very considerable part and the best designed tools can be ruined if the setting is inaccurate or the preheating of both die and material carried out carelessly.

Working cold material is especially harmful to the life of the die and will also produce erratic physical properties in the forging. In this connection it should be pointed out that even under optimum conditions, the finished heat treated and artificially aged forgings made of extruded stock have a lower tensile and yield strength but greater elongation than the original extrusion after similar heat treatment and ageing. This is due to difference in grain structure of extruded and rolled 14S material leading to abnormally high values of the mechanical properties of the former after heat treatment.

The forging operation causes more recrystallisation during subsequent solution heat treatment with the result that the final mechanical properties of the forging approximate to those of the rolled rather than extruded stock.

Employment of extruded stock thus does not lead to an improvement in strength of forging but is a matter of great convenience, besides conserving forging stock for special purposes.

An Electronic Defectoscope. (A. Gozelik and others, Met. Ind. Review, U.S.S.R., Vol. 19, No. 7, July, 1939, pp. 67-70.) (118/3 U.S.S.R.)

The magnetic field surrounding a magnetised specimen becomes distorted in the presence of cracks and flaws and this distortion can be utilised for detecting faults of this nature. Instruments of this type are called defectoscopes, the most common depending on visual examination (iron powder method, magnaflux). The variation in field strength can also be obtained directly by measuring the change in the force of attraction on a small ferromagnetic probe passed over the surface of the specimen, or indirectly by measuring the change in E.M.F. induced in a small search coil moving through the field at constant speed. The authors are specially interested in the testing of steel rails for cracks and flaws, where it is essential that the detector can pass over the rails at a reasonably high speed. This obviously rules out the iron powder method. Measurements based on the force of attraction of a small probe, quite apart from mechanical difficulties, are also limited as to speed of translation of the probe (time lag of magnetic saturation). Finally, the induced E.M.F. method would be difficult to apply in this case since it depends on a constant rate of translation. The authors have therefore proposed an alternative method, in which the variation in magnetic field strength close to the surface of the probe is measured electrically. For this purpose, a special valve consisting of a straight wire hot cathode placed at the centre of a semi-cylindrical anode is employed. The glass bulb has a flat top, the cathode being in close proximity to its internal surface and facing the concave surface of the anode. The latter is connected to the grid of a normal amplifying valve, the anode current of which is measured on a milliammeter or cathode ray oscillograph. The grid bias and loading resistances of the circuit are such that when the detector valve is in a constant magnetic field, the anode current of the amplifier is zero. On passing the flat glass top of the detector over the specimen under examination, any variation of field strength from this normal distribution changes the path of the electrons in the detector and thus alters the grid voltage of the amplifier with the result that the recorder operates.

The instrument is free from inertia and thus can be operated at any speed of translation relatively to the specimen. In addition, the sensitivity can be varied over wide limits by simply adjusting the voltage applied to the cylindrical anode or the heating current of the wire cathode. It is stated that the new defectoscope easily detects flaws of the order of .1 per cent. of the total cross-sections of a steel rail, the track being passed over at a speed of 25 km./hour. Obviously, this type of detector also lends itself to manual operation and the fact that it can be easily constructed in any wireless laboratory is an added advantage.

Instrument for Measuring the Wall Thickness of Long Tubes. (Der Deutsche Sportflieger, Vol. 10, No. 10, Oct., 1943, p. 164.) (118/4 Germany.)

The accurate measurement of the wall thickness of tubes presents considerable difficulties if the tube is of appreciable length.

The usual type of mechanical caliper gauge suffers from the drawback that any deflection of the overhung arms under gravity falsifies the measurements. Moreover, it is very difficult to ensure a constant contact pressure with instruments of this nature. These difficulties have been overcome by a new type of caliper gauge designed by the Junkers firm which has given excellent results in practice and which can check the wall thickness of tubes or plates over a span up to 10 feet.

The gauge essentially consists of a U-shaped feeler, one leg of which slips inside the tube and contacts the inner surface at the extremity of the limb. For this purpose the tube is supported horizontally above a parallel rail along which moves a carriage carrying two dial gauges as well as the pivoted support at the base of the U feeler. This base is provided with a balance weight by means of which the contact pressure of the inner feeler on the lower internal surface of the tube can be adjusted. Directly in line with the inner feeler, but contacting on the outer surface of the tube, is a second feeler attached to a spring-loaded plunger moving vertically in a slide attached to the carriage. One of the two dial gauges previously mentioned is attached to this slide whilst the feeler end of this gauge contacts the second limb of the caliper gauge. The second dial gauge is supported by the carriage and records the vertical displacement of the slide. At the beginning of the test a standard distance piece is inserted between the internal feeler of the caliper gauge and the external feeler attached to the slide, both dial gauges being set to zero. The tube is then inserted and dial gauge No. 1 will read directly the difference (+ or −) of the wall thickness from the standard dimension. Similarly, dial gauge No. 2 will indicate the degree of parallelism of the outer wall with the base line. It will be noted that in this arrangement any deflection of the U-shaped limbs of the caliper gauge under gravity is allowed for and that the contact pressures of external and internal feelers are constant.

A New Approximate Method for Measuring the Percentage Elongation of Metals at Fracture. (A. I. Mikheilov, Metal Industries, U.S.S.R., Vol. 19, No. 7, July, 1939, p. 71.) (118/5 U.S.S.R.)

The author claims to have established an empirical relationship between the percentage elongation δ_{10} at fracture (as obtained in the tensile test on cylindrical specimens with a length equal to 10 times the diameter) and the deformation of the specimen when undergoing an indentation test of the Brinell type.

If D = diameter of ball.
d = diameter of central spherical indentation.
S = diameter of extreme bulge surrounding central indentation.
F = surface area of central spherical indentation.

$$\delta_{10} = C\,(d/D^2K) \times 100$$

where $K = S/F$.

C = empirical constant,
= 2.5 for carbon steels.

The indentation test is carried out with a 5 mm. ball at 750 kg. At least two separate determinations should be carried out.

Transporting War Materials—Packaging Problems. (Chemical and Engineering News, Vol. 21, No. 20, October 25, 1943, pp. 1745-1746.) (118/6 U.S.A.)

The new package is a waterproof covering of secret composition, but definitely a plastic, which is applied directly by spraying and which will seal off any gaps and holes. The purpose is to put a waterproof skin over metal parts and to eliminate crating. It is inexpensive and easy to apply. On medium bombers, shipped as deck cargo, use of this spray method saves 1,000 man-hours per plane over here, and 200 man-hours at the destination. Instead of crating and laboriously protecting the plane from spray, the whole aeroplane is covered with the plastic skin and shipped. The covering is easily removed by peeling.

Although the plastic is applied by simple spraying of a solvent solution, a definite technique must be used. If the object has openings, the spray is first directed obliquely across the surface, using high pressure guns. This causes the plastic to form strings or webs across any openings. Next, a regular low-pressure spray deposits the coating over the webs already formed and the operation continues until the package is completely covered. Secret of the process, apart from the actual composition, is the rapidly drying solvent, so rapid that the plastic webs across all openings form practically immediately. The plastic shrinks upon drying, forming a skin-tight covering. To cover a medium bomber would require only 25 gallons of the solution, and at a reported cost of only a dollar a gallon, it is easily seen that savings are coming in army packaging. So new is the development that the first treated aeroplanes were, at the time of the meeting, on the high seas. As a test, the Air Corps dumped covered parts in Boston Harbour for five weeks just to make sure that the covering was really waterproof. Another advantage of the plastic is that there is no scarring or corrosion of precise metal parts, and though the solvent is inflammable, the plastic itself is not.

Aircraft Oil Systems—High Altitude Problems. (H. Moermann, S.A.E. Journal, Vol. 51, No. 11, Nov., 1943, Transactions, pp. 394-396, 407.) (118/7 U.S.A.)

Engine oil pumps are usually of the gear wheel type and provided the percentage of air entrained remains constant, the delivery of such pumps does not vary appreciably with altitude (intake pressure) up to about 20,000 feet. Above 30,000 feet, however, the delivery falls off appreciably, and at 40,000 feet may amount to less than 50 per cent. of the ground level performance. The reason for this drop is the formation of gas bubbles in the intake together with the expansion of any entrapped air already present, and can obviously be avoided by " supercharging " the oil tank. The simplest method would be to employ the scavenge oil pump for this purpose and sealing off the oil vent in the tank by means of a check valve. If the latter is set to maintain a pressure of about 2 psi above atmosphere, a satisfactory functioning of the oil pump up to at least 40,000 ft. can be assured. As there appears to be some objection to the use of such pressurised oil tanks on combat planes, the alternative of providing a " booster " pump in the intake circuit suggests itself. Such a pump, if of the centrifugal type would not be sensitive to entrapped air, but, if engine driven, would necessitate a redesign of the end cover plate. An electrical drive, on the other hand, would entail an appreciable power consumption and weight, especially with cold oil. Even if a booster is fitted, it is obviously an advantage to keep the proportion of entrained air as small as possible.

The source of contamination is in the engine itself and cannot be avoided, and the return flow from the scavenge pump to the tank always contains a considerable proportion of air. This contaminates the oil supply, with the result that the pressure pump now has to handle aerated oil.

As already stated, provided the proportion of air remains constant, the delivery of the pump is only affected at altitudes above 20,000 feet, but this delivery is appreciably less than would be the case with air free oil (13 per cent. reduction for 10 per cent. air addition).

Moreover, with such contaminated oil, it is no longer possible to maintain the constant delivery pressure so essential for engine operation.

(This difficulty does not arise in the case of the scavenge pump and satisfactory operation of the latter can be assured at all altitudes by simply making the pump big enough.)

A simple device for ensuring a marked reduction in air content consists of fitting a coiled tube to the return end of the scavenge circuit at the top of the oil tank (air space). This tube is provided with holes along the inner surface of the spiral through which the air can escape, the oil being forced against the outer wall of the spiral by centrifugal action.

The Sharples "Vortex" air separator functions on a similar principle, but dispenses with a guide tube.

Either type of separator ensures that the returned oil does not contain more than 5 per cent. of entrained air.

A Technologist Looks at the Future. (C. R. Burch, Nature, Vol. 152, No. 3,862, Nov. 6, 1943, p. 525.) (118/8 Great Britain.)

From the author's concluding statement:—

"What of education in the future? I look on it as an important indirect contribution to our long-term research policy to provide in our schools facilities for the keenest, at any rate, to follow up almost whatever kind of extra curricular activity may strike their interest—and this without binding themselves in any way as to their future careers. This foretaste of achievement in following up individual interest provides, I believe, the strongest possible stimulus to education, and if the nature of the interest should change, the stimulus remains the some.

"The cultivation of enthusiasm I take to form the first requisite in that far-sighted educational policy and that courageous long-term research policy to which I look forward in the future, after the war."

A.B.A. Rotor Balancer for Gyroscope and Supercharger Impellers. (Inter Avia, No. 884-885, 14/9/43, pp. 24-25.) (118/9 Sweden.)

1. The instrument division of A.B.A., the Swedish airline, has developed a control apparatus for the checking and balancing of the rotors of aircraft gyros; the design of the apparatus has been shown by experience to be suitable also for balancing larger rotors, such as supercharger impellers, etc.

2. The design of the A.B.A. balancer is as follows:—The rotor with its bearings is placed in a sturdy frame, with its axis vertical; the frame is supported by three blade springs, which allow the upper end of the axis to make practically undamped oscillations. Therefore, when an unbalanced rotor is brought to rotate, the upper end of the axis describes a small circle, the diameter of which is proportional to the magnitude of the unbalance force. The upper part of the frame consists of a hollow cylinder which constitutes one plate of a condenser. Inside the cylinder is the other plate of the condenser which assumes the form of two segments that can be turned in a stator. If an electrical voltage is applied

to the condenser, the movements of the upper part of the frame bring about variations in the capacity of the condenser, and consequently a varying voltage. The variations in voltage are amplified and applied to a cathode-ray tube to give vertical deflections of the rays. The vertical deflection of the ray is therefore a measure of the unbalance force. The position of the c.g. is determined by a light ray thrown on the rotor, which is polished on one side and dull on the other. The ray reflected by the polished side is used to act upon a photo-electric cell, the impulses of which are amplified and brought to the cathode ray tube to give horizontal deflection.

By introducing an impulse generator between the photo cell and the cathode-ray tube, it is possible to determine the exact position of the rotor unbalance with the aid of the rotable condenser. In order to eliminate the disturbances caused by the bearing of the gyro, a filter is used which is tuned to a selected test frequency (which corresponds to the frequency from unbalance); for aircraft gyros the frequency of 9,000 r.p.m. has been chosen which is controlled by a stratoscope. A photograph shows three different installations, of which the smallest is intended for the rotors of aircraft gyro instruments (weight 0.7 lb.), the medium one for marine gyros (weight 5 lb.), and the third for aircraft engine supercharger impellers (weight from 4.2 to 10.9 lb.).

Some Considerations on the Diminution of Resistance at Supersonic Speed by the Chilowsky Process. (D. Riabouchinsky, Comptes Rendus, Vol. 208, No. 26, 26/6/39, pp. 2037-2040.) (118/10 France.)

At the beginning of 1915, Chilowsky proposed to reduce the drag of high speed projectiles by projecting a flame ahead of the projectile and thus raising the temperature of the surrounding medium. The process was patented by him in 1917 (French Patent No. 503,934) and the beneficial effects confirmed by Huguenard (see Abstract No. 118/11). In the present note the author reinvestigates the problem from a theoretical standpoint, on the assumption that the drag R is given by the equation

$$R=\rho V^2 s f(V/c) \qquad (1)$$

where s = max. section of projectile.
V = speed of translation.
c = speed of sound.
$k=f(V/c)$ = drag coefficient.

Any effect of Reynolds number is thus neglected.

For a given projectile and speed of translation, the drag thus varies as the product of the local density with a function of the Mach number. If the suffix f denotes characteristic of the air after heat addition, it can easily be shown that

$$R_1/R=(\lambda_1/\lambda)\,(V/c_1/Vc)^2\,[f(V/c_1)/f(V/c)]$$

where

$$(V/c_1)/(V/c)^2=(\lambda RT)/(\lambda_1 R_1 T_1)$$

If λ and R remain unchanged, we thus have

$$R_1/R=[f(V/c_1)/f(V/c)]\times(V/c_1)^2/(V/c)^2$$

and

$$(V/c_1)/(V/c)^2=T/T_1$$

The author considers a standard artillery projectile exhibiting the following variations in the resistance coefficient k with Mach number V/c under standard condition ($T=288°C_A$).

V (m./sec.)	$V/c=M$	$k=R/(\rho V^2 s)$
256	·75	.12
575	1.68	·33
1026	3.0	.25

The problem is to find T_1 so that the resistance R_1 at 575m./sec. becomes equal to that at 256 m./sec. at 288°C. (lowering of effective Mach number).

https://doi.org/10.1017/S0368393100140726 Published online by Cambridge University Press

We have

V	V/c	$f(V/c)$	V/c_1	$f(V/c_1)$	R_1/R	$(R-R_1)/R$	T_1/T	T
575	1.68	.33	.75	.12	.072	.928	5.03	1449°C$_A$
1026	3	.25	1.68	.33	.414	.586	3.18	916
1026	3	.25	.75	.12	.030	.970	16.0	4608

It will be noted that a temperature of 1,450°C$_A$. is sufficient to reduce the drag coefficient to subsonic value and reduce the total drag at 575 m./sec. by 93 per cent. The two other calculations in the table refer to a projectile speed of 1,026 m./sec. (Mach number = 3). In order to reduce the drag coefficient to subsonic value in this case requires a temperature of 4,600°C$_A$. which is clearly impracticable. If, however, we are satisfied with a reduction in equivalent speed to 575 m./sec. a temperature of 916°C$_A$. suffices and this will produce a 59 per cent. reduction in drag, although the drag coefficient k has actually risen from .25 to .33.

From the above it appears that the proposal certainly merits consideration in high speed projectiles (Abstraction Note—rockets?). Applied to lifting surface (wings) however, not much will be gained unless the equivalent speed can be reduced to subsonic value. This is due to the fact that in the supersonic range the lift collapses and a reduction of drag alone is of no value.

Since an air temperature of about 1,500°C$_A$. represents an upper limit by the method of flame projection, the scheme is only applicable to Mach numbers less than about 1.5.

High Speed Wind Tunnels and Their Application to Ballistic Research. (E. Huguenard, La Technique Aeronautique, Vol. 15, No. 37, 15/11/24, pp. 346-355, and No. 38, 15/12/24, pp. 378-392.) (118/11 France.)

The generation of a high speed air jet requires a considerable amount of power, even if the cross section of the jet is restricted. Thus, neglecting compressibility, a speed of 200 m./sec. generated from rest corresponds to a depression of 2,500 mm. of water ($\frac{1}{4}$ atmosphere) and a work input of over 700 h.p. per square foot of jet section. (Allowing for compressibility, the speed for the same pressure difference is raised to 217 m./sec. and the work input increased correspondingly.) This can be reduced to about 200 h.p. by fitting an expanding nozzle to the working section of the tunnel (atmospheric entry), the extractor fan being placed at the large diameter exit section. In this manner, the pressure head across the fan is decreased materially, provided the cone angle of the diffusor is small ($\sim 6°$) and the walls very smooth.

A high speed wind tunnel of this open jet type (Eiffel) has been set up at the Cork Field in the U.S.A.

Since, under these conditions, the h.p. per unit area of jet varies roughly as V^3, an increase of speed from 200 to 500 m./sec. would necessitate a 16-fold increase in power. It is obvious that the provision of a reasonable working section by this means would necessitate a very considerable power plant.

Prandtl has suggested overcoming this difficulty by building the tunnel in the closed form. After building up the high speed gradually, the fan would only have to overcome the friction losses in the circuit in order to maintain the high speed circulation. Since, however, all the friction losses ultimately are converted into heat, the air stream will assume a very high temperature unless adequate precautions are taken. Preliminary experiments have indicated that the provision of an adequate cooler will present considerable difficulties, and this together with the complication arising from the closed section have led the author to investigate the alternative scheme of providing the high speed jet by the sudden release of compressed air from a tank. This method is obviously unsuited for large working sections. If, however, we are satisfied with drag measurements at zero incidence, the free jet diameter need not exceed the shell calibre appreciably and a 10 cm.

jet will suffice for a 75 mm. shell. (This applies especially if only relative drag measurements associated with small changes in the shell contour are required.) Naturally, the speed of efflux will vary during the experiment, but this is no great drawback provided simultaneous readings of drag and speed can be taken. With a free jet, this presents no great difficulty. The absence of any walls facilitates the taking of striation photographs from which the air speed can be estimated with sufficient accuracy (curvatures of shock wave at projectile or displacement of sound wave generated by an explosive spark) whilst the corresponding drag is obtained from an ordinary piston indicator actuated by an extension rod attached to the base of the shell.

The author has carried out a large number of experiments on 75 mm. shells with an apparatus of this type, using a tank of only 7 m.^{3} capacity pumped up to a pressure of 6.5 kg./cm.^{2} (atmospheres). The jet is obtained from a Laval type nozzle converging to 80 mm. at the throat and diverging to a final section of 98 mm. With an initial temperature of 15°C. this should produce a theoretical initial jet speed of 500 m./sec., the recorded maximum speed being of the order of 450 m./sec.

With a tank of 7 m.^{3} capacity, this speed drops to 200 m./sec. in about 6 seconds, speeds above 300 m./sec. being maintained for about 3 seconds.

As the experiments were carried out at the central power station of the Paris Compressed Air Supply Co. provided with 12,000 h.p. compressors, this tank could be refilled in a few minutes.

Since with each filling at least 5 records can be taken, the drag/speed relationship can be obtained very quickly. It is stated that with the same set-up the results are very consistent and modifications due to variation in shell shape are readily discernable. Moreover, the shape of the shock wave at the nose of the shell (which is readily visible by eye) provides an excellent check for the symmetrical mounting of the projectile in the air stream.

The results obtained with standard 75 mm. shells are in good agreement with drag estimates based on firing trials, and the author hopes that in view of the expense and complicated nature of such trials, the simple method of measuring drag directly will be made use of extensively in further ballistic research.

The provision of a larger tank (250 m.^{3} capacity) is under contemplation. This would enable similar experiments to be carried out with an air jet 60 cm. in diameter.

The author points out that speeds in excess of 500 m./sec are best obtained by raising the temperature of the compressed air in the tank. Thus an initial pressure of 6.5 kg./cm.^{2} is raised to 11.6 kg./cm.^{2} by warming the air to 250°C. The maximum theoretical efflux speed now becomes 728 m./sec. The necessary temperature rise in the tank can be considerably lowered, if a small quantity of steam is added to the air. In this case an original air temperature of about 120°C. at a pressure of about 8 kg./cm.^{2} should suffice to produce an efflux speed of over 700 m./sec (latent heat of steam lowers the adiabatic index of expansion and prevents rapid cooling).

Of special interest are the results obtained by the author on shells of the Chilowsky type fitted with a flame projector in the nose.

The standard 75 mm. F.N. projectile has a resistance at zero incidence of 50 kg. at 480 m./sec. This can easily be halved by the combustion of 10 gm. of phosphorus suitably placed in the nose of the shell. In the case of another type of 75 mm. shell (D. 1917) the reduction by flame projection is even more marked (from 20 kg. to 8 kg. at 480 m./sec.). According to the inventor, the drag reduction is brought about by the heated air becoming less dense. The effect is, however, mainly due to a lowering of the effective Mach number, the speed of sound being raised by the heat transfer.

The author does not state how long the combustion of the 10 gm. of phosphorus lasts. It is stated, however, that an increase in range of the shell of the order of 25 per cent. was estimated on the basis of the drag measurements and that this was confirmed by actual firing trials.

(ABSTRACTOR'S NOTE.—In the case of rocket shells, there should be no difficulty in providing the necessary heat over a considerable part of the trajectory.)

Theoretical Examination of Axial Fan Performance. (H. Struve, C.A.H.I. Report No. 295, Moscow, 1937.) (Available as R.T.P. Translation No. T.M. 1,042.) (118/12 U.S.S.R.)

In the first part of the paper, the author deduces the aerodynamic forces acting on a moving blade grid assuming axial entry and the absence of friction. As is well known, the resultant force under these conditions acts perpendicularly to the bisector of the angle between the respective relative velocities W_1 and W_2 at entrance and exit to the grid, blade interference being neglected.

The static pressure difference across the grid is given by

$$H = \rho c_u (u - c_u/2) \qquad (1)$$

where $u = wr$ = speed of translation of grid.

c_u = tangential component of absolute velocity at exit.

The bisector of the angle between W_1 and W_2 referred to above will make an angle β with the direction of motion and is given by

$$\tan \beta = c_a/(u - c_u/2) \qquad (2)$$

where c_a = absolute velocity at entry to grid (assumed axial).

Using this direction as that of the relative wind, the problem is to find an actual profile which when set at an angle of attack α will produce the necessary pressure difference most efficiently.

In practice, the dimensions of the fan, speed of operation, delivery and pressure head required are usually given. Thus c_a and u are known.

Substituting an actual profile will modify the pressure difference given by (1), due to the introduction of friction. The actual head will be given by

$$H_a = \eta \rho c_u (u - c_u/2) \qquad (3)$$

$$\text{where } \eta = k_a k_u \tan \beta \qquad (4)$$

$k_a = c_y \cos \beta - c_x \sin \beta$.

$k_u = c_y \sin \beta + c_x \cos \beta$.

$$\left.\begin{array}{l} c_y = \text{lift coefficient} \\ c_x = \text{drag} \quad ,, \end{array}\right\} \text{of profile and are functions of the angle of attack } \alpha.$$

From physical considerations it can be established that the pressure produced by the fan as a whole is equal to that produced by the blade tip element.

Equation (3) can therefore be solved for c_u at the external radius R provided η is known.

Since η is a function of β and α (equation 4) and therefore of c_u (equation 2), the solution can only be carried out by iteration.

Knowing c_u at R, the values at any other radius follow from the relation

$$c_u r = \text{constant},$$

which must hold if the flow is to be confined to co-axial cylindrical shells (no cross flow at exit).

The pressure difference produced by the profile element at an angle of attack α (chosen to make η a maximum) is given by

$$H = \rho k_a \{ (u - c_u/2)/\cos \beta \} (bi/2\pi r) \qquad (5)$$

where i = number of blades (chosen for structural reasons).

b = width of aerofoil.

Equating (3) and (5), the blade width at any radius can be determined.

Since blade interference is neglected, the method will apply to any number of blades.

Similarly the method is readily adapted to estimating effect of operative conditions on fan performance, assuming that constancy of circulation along the blade (implied by the condition $c_u r = \text{const.}$) is maintained.

The author gives experimental results on the performance of a number of fans, employing profiles of various type and blade numbers up to 12. For blade numbers up to 6, the computed and actual performance are in reasonable agreement. As was to be expected, however, the neglect of the blade interference causes considerable deviation for higher blade numbers (especially in pressure difference).

Although an attempt is made to allow for this by a correction factor, the author concludes that this phenomenon will require more detailed study before the theory of fans can be considered as satisfactory.

Attention is also called to the pronounced effect of entry conditions on fan performances, which has not been considered in the present report.

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AERO AND HYDRODYNAMICS.

TRANSLATION NUMBER AND AUTHOR.		TITLE AND REFERENCE.
1979	Junkers	*Maintaining Laminar Flow on a Profile.* (*German Patent* 734,937.) (Flugsport, Vol. 35, No. 12, 18/8/43, pp. 42-43.)
1980	Helmbold, H. B. ... Keune, F.	*The Systematic Development of Profile Types and the Method of Singularities.* (L.F.F., Vol. 20, No. 5, 16/4/43, pp. 77-80.)
1983	Helmbold, H. B. ...	*Contribution to the Profile Theory—Part VI.* (L.F.F., Vol. 20, No. 6, 30/6/43, pp. 196-206.)
1988	Ferri, A.	*The Influence of Reynolds Number at High Mach Numbers.* (Atti di Guidonia, 67-69.) (Luftwissen, Vol. 10, No. 3, March, 1943, pp. 90-91.)
1997	Tollmien, W. ...	*On the Transition from Subsonic to Supersonic Flow.* (Z.A.M.M., Vol. 17, No. 2, April, 1937, pp. 117-136.)

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1978	Messerschmitt ...	*Tailless Aircraft.* (*German Patent* 735,419.) (Flugsport, Vol. 35, No. 12, 18/8/43, pp. 41-43.)
1987	Mitzsche, W. ...	*The Coupling of Airscrew Blades in Variable Pitch Mechanisms.* (Luftwissen, Vol. 10, No. 3, March, 1943, pp. 74-77.)
1993	Muhll, v. d. A. ...	*The Effectiveness of the Propeller as an Air Brake During Landing.* (Flugwehr und Technik, Vol. 5, No. 8, August, 1943, pp. 211-217.)
2001	——	*Lagg-3 Russian Fighter Aircraft.* (Flyg. Vol. 21, No. 16, August, 1943, pp. 20-21.)

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1995	Amstutz, E. ...	*Technical Consideration Governing Airport Design (Layouts).* (Strasse u. Verkehr, Vol. 27, No. 20, 1941, pp. 367-376.)
2004	Weber, O. ...	*Planning of Airports with Particular Reference to Meteorological and Climate Considerations.* (Strasse u. Verkehr, Vol. 27, No. 20, 1941, pp. 377-383.)
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1994	Gernlein, F. Dannien, W. ...	*Present Day Problems and State of Development of German Wood.* (Z.V.D.I., Vol. 87, No. 13-14, 3/4/43, pp. 186-188.)
1996	Haase, C. ... Wurst, W. ...	*Cold and Heat Hardening Treatment of Al.-Mg.-Si. Alloy.* (Z. f. Metallk., Vol. 33, No. 12, Dec., 1941, pp. 399-403.)
1998	Burgardt, W. Schaitberger ...	*The Stress Corrosion of Some Al.-Zn.-Mg. Alloys, After Hot Age Hardening.* (Z. f. Metallk., Vol. 35, No. 2, Feb., 1943, pp. 47-53.)
2000	Steinhauser, K. Aust, K. ...	*Rapid Chemical Method for Determining Mg. in the Presence of Zn. in Aluminium Alloys (1-1½ Hours).* (Aluminium, No. 6-7, 1/7/42, pp. 216-218.)
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2003	Bornis, F. ...	*Measurement of the Dielectric Constants and Loss Factor of Dielectric Substances with a Wave-length of 17 cm. with the Help of Cavity Resonators.* (Phys. Zeit., Vol. 43, No. 15-16, Aug., 1942, pp. 284-291.)
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1	13628	G.B.	*Spherographical Navigation.* (Aeronautics, Vol. 8, No. 6, July, 1943, p. 45.)
2	14424	U.S.A. ...	*Compass Courses are Easy.* (J. R. Hoyt, Flying, Vol. 33, No. 2, August, 1943, pp. 96, 110-112.)
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4	14461	U.S.A. ...	*C.A.A. Examination Course for Pre-Flight Aviation Students.* (A. J. Rosenberg, American Aviation, Vol. 7, No. 5, August 1, 1943, p. 54.)
5	14466	G.B.	*The Work of the R.A.F. (Official Figures).* (Engineering, Vol. 156, No. 4,052, September 10, 1943, p. 213.)
6	14660	Germany ...	*The N.S. Flying Corps (Pre-Military Training Centre for German Fliers).* (F. Kilian, Der Deutsche Sportflieger, Vol. 10, No. 7, July, 1943, pp. 109-110.)

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8	14814	G.B. ...	*Navigation Without Tears.* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, pp. 330-331.)
9	14815	G.B. ...	*Women as Ground Crews.* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, pp. 332-333.)
10	14825	U.S.A. ...	*American Commitments—the Rôle of the U.S. Air Forces.* (General H. Arnold, Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, pp. 326-327.)
11	14975	U.S.A. ...	*Ordnance with the Air Force.* (H. J. Conway, Army Ordnance, Vol. 25, No. 140, Sept.-Oct., 1943, pp. 338-340.)
12	15173	G.B. ...	*Navy's Instrument-Flying School (Beam Landings).* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 387.)
13	15186	G.B. ...	*R.A.F. Technical Training Command Halifax Instructional School.* (Flight, Vol. 44, No. 1,815, 7/10/43, pp. 402-403.).
14	15299	U.S.A. ...	*Prelude to Flight and Work of Pre-Flight Schools.* (D. H. Munson, Flying and Industrial Aviation, Vol. 33, No. 3, Sept., 1943, pp. 24-26, 144.)
15	15302	U.S.A. ...	*"Sea-Birds"—The Coast Guards' Aviation Unit.* (R. Williams, Flying and Industrial Aviation, Vol. 33, No. 3, Sept., 1943, pp. 32-34, 139.)

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16	14324	U.S.A. ...	*Tactical Bombing—Lessons from Sicily.* (F. A. de V. Robertson, Flight, Vol. 44, No. 1,811, Sept. 9, 1943, p. 281.)
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18	14403	Germany ...	*The R.A.F. Technique for Bombing Germany.* (R. Sydney, Flying, Vol. 33, No. 2, August, 1943, pp. 21-23, 172-174.)
19	14412	U.S.A. ...	*Control of Flooded Areas by Air Patrols.* (M. Roddy, Flying, Vol. 33, No. 2, August, 1943, pp. 49-50, 192.)
20	14568	G.B. ...	*Surrender of the Italian Fleet.* (Engineer, Vol. 176, No. 4,575, Sept. 17, 1943, pp. 223-225.)
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28	15254	U.S.A.	... *Parachute Delivery of Vitally Needed Small Parts.* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 219.)
29	15300	U.S.A.	... *Skip-Bombing.* (W. Gordon, Flying and Industrial Aviation, Vol. 33, No. 3, Sept., 1943, pp. 27-29, 142.)

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31	14337	U.S.A.	... *Engineering by Subtraction (Simplifying Design and Employing Armour as an Integral Part of Structure).* (N. V. Davidson, Aviation, Vol. 42, No. 6, June, 1943, pp. 165, 333-334.)
32	14341	Germany	... *Elevator Control Mechanism of the Junkers Ju.* 88 *(Design Detail).* (Aviation, Vol. 42, No. 6, June, 1943, p. 187.)
33	14342	U.S.A.	... *Details of the Tubing Installation of the Fuselage De-Icing Equipment of the Boeing B-*17. (Aviation, Vol. 42, No. 6, June, 1943, p. 189.)
34	14343	Germany	... *Inspection Plates on the Junkers Ju.* 88 *(Sketch).* (Aviation, Vol. 42, No. 6, June, 1943, p. 191.)
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36	14364	Germany	... *Structure of German Aeroplanes (M.A.P.) Reports.* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, pp. 294-299.)
37	14389	U.S.A.	... *Ring Springs Used in Plane Shock Struts of Ju.* 88. (Automotive Industries, Vol. 89, No. 3, August 1, 1943, p. 88.)
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42	14658	Germany ...	*Mechanical Device for Projecting Pilot's Seat Fitted with Parachute Outside Aircraft. (Junkers Patent No.* 711,045.) (Junkers Journal, Vol. 13, No. 12, Dec., 1942, pp. 130-131.)
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49	14913	G.B.	*Spitfire IX Modified Rudder.* (Inter. Avia., No. 872-873, June 18, 1943, p. 15.)
50	15010	U.S.A. ...	*Magnesium in German Aircraft.* (H. W. Schmidt, Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, pp. 7-21, 145.)
51	15017	U.S.A. ...	*Instrument Lay-Out in Cockpit of Focke-Wulf* 190 *(Photo).* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, p. 97.)
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54	15073	G.B.	*Track Landing Gear.* (G. H. Dowty, Flight, Vol. 44, No. 1,814, Sept. 30, 1943, pp. 368-369.)
55	15089	G.B.	*The Westland Electric Remote Control Unit.* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 373.)
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85	14801	G.B. ...	... *Taylorcraft Austers (Photo).* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, pp. 347, 356-357.)
86	14802	G.B. ...	... *Avro Lancaster II with Bristol Hercules Radial Motors (Photograph).* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, p. 348.)
87	14803	G.B. ...	... *Hawker Sea Hurricane Fighter Catching an Arrestor Wire on Deck of Carrier (Photo).* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, p. 350.)
88	14807	G.B. ...	... *The Miles Martinet I (Recognition Details).* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, p. 361.)
89	14813	G.B. ...	... *Hurricane II D and II C (Photos).* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, pp. 328-329.)
90	14911	G.B. ...	... *Hawker Typhoon I A, B and C.* (Inter. Avia., No. 872-873, June 18, 1943, II, p. 14.)
91	14912	G.B. ...	... *Spitfire Vb Modified for Low Altitude.* (Inter. Avia., No. 872-873, June 18, 1943, p. 14.)
92	14915	G.B. ...	... *Halifax II (Modified Nose).* (Inter. Avia., No. 872-873, June 18, 1943, p. 15.)
93	14923	G.B. ...	... *Sunderland III Reconnaissance Flying Boat.* (Inter. Avia., No. 874, June 30, 1943, p. 15.)
94	15058	G.B. ...	... *Halifax II, Series II (Silhouettes).* (Aeroplane, Vol. 65, No. 1,688, 1/10/43, p. 373.)

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95	15064	G.B. ...	... *Taylorcraft Auster III* (*Photo*). (Aeroplane, Vol. 65, No. 1,688, 1/10/43, p. 391.)
96	15154	G.B. ...	... *Typhoons as Dive-Bombers* (*Photos*). (Aeronautics, Vol. 9, No. 2, Sept., 1943, p. 45.)
97	15165	G.B. ...	... *Spitfires and Air-Sea Rescue*. (Aeronautics, Vol. 9, No. 2, Sept., 1943, p. 77.)
98	15182	G.B. ...	... *Taylorcraft Auster III* (*Recognition Details*). (Flight, Vol. 44, No. 1,815, 7/10/43, p. 393.)

Military Types of Aircraft (Canada and Australia).

99	14359	Canada	... *Noorduyn "Norseman"* (*Photos*). (Aviation, Vol. 42, No. 6, June, 1943, pp. 241, 349.)
100	14763	Australia	... *Australia's New Fighter—the Boomerang*. (Flight, Vol. 44, No. 1,812, 16/9/43, p. 309.)
101	14776	Canada	... *Canadian and British Military Aircraft*. (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 82-92.)

Military Types of Aircraft (U.S.S.R.).

102	14306	U.S.S.R.	... *Russian Military Aircraft* (1943). (Aviation, Vol. 42, No. 2, February, 1943, pp. 221-227.)
103	14365	Russia	... *Iliuchin IL-2* (*Recognition Details*). (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 301.)
104	14366	Russia	... *Sukhon SU-2* (*Recognition Details*). (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 301.)
105	14486	U.S.S.R.	... *Aeroplanes of the Russian Air Forces* (*Recognition Details*). (Aeroplane Spotter, Vol. 4, No. 92, Sept. 9, 1943, pp. 207-214.)
106	14758	Russia	... *Lagg-3* (*Recognition Details*). (Flight, Vol. 44, No. 1,813, Sept. 23, 1943, p. 341.)
107	14780	U.S.S.R.	... *Russian Military Aircraft*. (Commercial Aviation, Vol. 5, No. 5, May, 1943, p. 112.)
108	14906	U.S.S.R.	... *New Russian First Line Types* (*Lagg-5, IL-4, Pe-2*). (Inter. Avia., No. 872-873, June 19, 1943, p. 9.)
109	15164	G.B. ...	... *New Soviet Fighter La. 5*. (Aeronautics, Vol. 9, No. 2, Sept., 1943, p. 73.)

Military Types of Aircraft (U.S.A.).

110	14258	U.S.A.	... *North American A-36 Fighter* (*New Version of P-51 Mustang*). (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 62.)
111	14299	U.S.A.	... *North American P-51 Mustang* (*Cut-away Drawing*). (Aviation, Vol. 42, No. 2, February, 1943, p. 147.)
112	14304	U.S.A.	... *American Military Aircraft* (1943). (Aviation, Vol. 42, No. 2, February, 1943, pp. 181-207.)
113	14316	U.S.A.	... *Curtiss-Wright C-76 Caravan*. (Aviation, Vol. 42, No. 2, February, 1943, p. 392.)
114	14317	U.S.A.	... *Lockheed Constellation*. (Aviation, Vol. 42, No. 2, February, 1943, p. 392.)
115	14322	U.S.A.	... *Rolls Royce Merlin-Engined Warhawks* (*Photo*). (Flight, Vol. 44, No. 1,811, Sept. 9, 1943, p. 272.)
116	14325	U.S.A.	... *Cessna Crane* (*Recognition Details*). (Flight, Vol. 44, No. 1,811, Sept. 9, 1943, p. 283.)
117	14371	U.S.A.	... *An Amphibious Douglas C. 47* (*DC-3*). (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 312.)

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118	14379	U.S.A.	...	*Consolidated Vultee Convair Patrol Flying Boat for Anti-Submarine Duty.* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 26-27, 140.)
119	14411	U.S.A.	...	*First Analysis of the Thunderbolt.* (Peter Masefield, Flying, Vol. 33, No. 2, August, 1943, pp. 47-48, 188-190.)
120	14417	U.S.A.	...	*North American Mitchell (Recognition Details).* (Flying, Vol. 33, No. 2, August, 1943, p. 82.)
121	14418	U.S.A.	...	*Lockheed Hudson (Recognition Details).* (Flying, Vol. 33, No. 2, August, 1943, p. 82.)
122	14678	U.S.A.	...	*The Vought-Sikorsky Kingfisher (Recognition Details).* (Aircraft Engg., Vol. 15, No. 175, September, 1943, pp. 263-264.)
123	14761	U.S.A.	...	*The New Martin Marauder (B. 26C) (Photo).* (Flight, Vol. 44, No. 1,812, 16/9/43, p. 303.)
124	14775	U.S.A.	...	*American Military Aircraft (Review).* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 54-80.)
125	14789	U.S.A.	...	*Cessna Aircraft for Training Bomber Pilots.* (E. H. Forbes, Air Services, Vol. 28, No. 7, July, 1943, pp. 37-40, 48.)
126	14806	U.S.A.	...	*The North American Harvard I (Recognition Details).* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, p. 361.)
127	14809	U.S.A.	...	*Improved Versions of the Consolidated Liberator and Boeing Fortress.* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, p. 319.)
128	14811	U.S.A.	...	*North American A-36 Fighter Dive Bombers (Photo).* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, p. 320.)
129	14812	U.S.A.	...	*Gruman Tarpon I Torpedo Bomber (Photo).* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, p. 322.)
130	14916	U.S.A.	...	*Republic S-47 Thunderbolt (Exhaust Driven Supercharger).* (Inter. Avia.,No. 872-873, June 18, 1943, II, p. 17.)
131	14917	U.S.A.	...	*Sikorsky XR-4 Helicopter* (150 *h.p.*). (Inter. Avia., No. 872-873, June 18, 1943, p. 17.)
132	14918	U.S.A.	...	*Curtiss Owl Observation Plane (O-52).* (Inter. Avia., No. 872-873, June 18, 1943, p. 17.)
133	14921	U.S.A.	...	*Lockheed-Vega B-34 Ventura (Twin-Engined Bomber).* (Inter. Avia., No. 874, June 30, 1943, p. 8.)
134	14922	U.S.A.	...	*Bell P-39 Airacobra Fighter.* (Inter. Avia., No. 874, June 30, 1943, p. 9.)
135	14923	U.S.A.	...	*North American A-36 Fighter (Derived from Mustang).* (Inter. Avia., No. 874, June 30, 1943, p. 9.)
136	14968	U.S.A.	...	*Martin B-26 Marauder Bomber (Photo).* (Army Ordnance, Vol. 25, No. 140, September-October, 1943, p. 318.)
137	15015	U.S.A.	...	*An "Exploded" View of the Fairchild AT-21 Gunnery Trainer.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, p. 91.)

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138	15019	U.S.A.	...	*New Piper Trainer.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, pp. 159-161.)
139	15026	U.S.A.	...	*New Fairchild Bomber Crew Trainer—AT.* 14. (Journal of Aeronautical Science (Review Section), Vol. 2, No. 1, January, 1943, p. 97.)
140	15034	U.S.A.	...	*New Curtiss A-25 Bomber (Photo).* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 3, March, 1943, p. 55.)
141	15060	U.S.A.	...	*Grumman Hellcat Single-Seat Fleet Fighters (Photo).* (Aeroplane, Vol. 65, No. 1,688, 1/10/43, p. 380.)
142	15075	U.S.A.	...	*Piper P.T. Trainer (Recognition Details).* (Flight, Vol. 44, No. 1,811, Sept. 9, 1943, p. 282.)
143	15162	U.S.A.	...	*Vought-Sikorsky F. 4U (Photo).* (Aeronautics, Vol. 9, No. 2, September, 1943, p. 70.)
144	15172	U.S.A.	...	*Thunderbolt (Photograph).* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 383.)
145	15255	U.S.A.	...	*The Aeronca L-3B Liaison Aircraft (Design Details).* (Aero Digest, Vol. 43, No. 1, July, 1943, pp. 226-227.)
146	15260	U.S.A.	...	*Amphibious Douglas C. 47 "Skytrain" (Photo).* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 252.)
147	15281	U.S.A.	...	*Ryan Plastic-Bonded Plywood Primary Trainers (PT-25) (Photo).* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 495.)
148	15282	U.S.A.	...	*Navy Version of the Consolidated "Liberator" (Photo).* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 499.)
149	15304	U.S.A.	...	*Republic Thunderbolt (Recognition Details).* (Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, p. 50.)
150	15305	U.S.A.	...	*Consolidated Liberator (Recognition Details).* (Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, p. 50.)

Military Types of Aircraft (Sweden).

151	14907	Sweden	...	*J. 22 Fighter (Steel Frame, Plywood Cover).* (Inter. Avia., No. 872-873, June 18, 1943, p. 10.)
152	14908	Sweden	...	*B. 18 Light Bomber (Svenska).* (Inter. Avia., No. 872-873, June 18, 1943, p. 10.)

Military Types of Aircraft (Germany).

153	13389	Germany	...	*Heinkel He. III H.S. (Photo).* (Aeroplane, Vol. 65, No. 1,680, 6/8/43, p. 165.)
154	14301	Germany	...	*Structural Details of Focke-Wulf* 190 *A3 (Sketch).* (Aviation, Vol. 42, No. 2, February, 1943, p. 151.)
155	14308	Germany	...	*German Military Aircraft* (1943). (Aviation, Vol. 42, No. 2, February, 1943, pp. 231-237.)
156	14323	Germany	...	*Review of the Features of Axis Aircraft Types Captured in the North African Campaign (Me. 210 A-1m Focke-Wulf 190, etc.).* (Flight, Vol. 44, No. 1,811, September 9, 1943, pp. 277-280.)
157	14420	Germany	...	*Junkers Ju. 52 (Recognition Details).* (Flying, Vol. 33, No. 2, August, 1943, p. 83.)

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158	14572	Germany ...	*The Weight of German Aircraft* (*F.W.* 190 *A*-3, *Me.* 109 *F*-1/2, *Do.* 217-1). (Engineer, Vol. 176, No. 4,575, Sept. 17, 1943, p. 232.)
159	14657	Germany ...	*Junkers Aircraft in the Eastern Front* (*Photographs*). (Junkers' Journal, Vol. 13, No. 12, Dec., 1942, p. 133.)
160	14659	Germany ...	*Long Distance Reconnaissance Flying Boat Do.* 24 (*Photo*). (Der Deutsche Sportflieger, Vol. 10, No. 7, July, 1943, cover page.)
161	14763	Germany ...	*Messerschmitt Me.* 323 (*Recognition Details*). (Flight, Vol. 44, No. 1,812, 16/9/43, p. a.)
162	14777	Germany ...	*German Military Aircraft.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 94-100.)
163	14909	Germany ...	*Heinkel He.* 277 *Long Range Fighting Bomber* (*Jabo*). (Inter. Avia., No. 872-873, June 18, 1943, pp. 11-12.)
164	15061	Germany ...	*Focke-Wulf F.W.* 200*k*2 *Kurier II Four-Motor Patrol Bomber* (*Photo*). (Aeroplane, Vol. 65, No. 1,688, 1/10/43, p. 381.)
165	15179	Germany ...	*New German Types* (*Me.* 410. *F.W.* 290, *F.W.* 190 *A*3 *and F.W.* 190 *A*4). (Flight, Vol. 44, No. 1,815, 7/10/43, p. 391.)

Military Types of Aircraft (Japan).

166	14309	Japan ...	*Japanese Military Aircraft* (1943). (Aviation, Vol. 42, No. 2, February, 1943, pp. 239-241.)
167	14778	Japan ...	*Japanese Military Aircraft.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 100-106.)
168	14905	Japan ...	*New Version of Mitsubishi S-OO Fighter.* (Inter. Avia., No. 872-873, June 18, 1943, pp. 8-9.)
169	15176	Japan ...	*Japanese Aircraft Designation.* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 391.)
170	15180	Japan ...	*New Japanese Aircraft.* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 391.)

Military Types of Aircraft (France).

171	14769	France ...	*The Payen Pa.* 222 (*Wood Constructed Tandem Monoplane*). (Flight, Vol. 44, No. 1,812, 16/9/43, p. 310.)
172	14805	France ...	*New Types of French Multi-Motor Planes.* (Aeroplane, Vol. 65, No. 1,687, 22/9/43, pp. 358-359.)

Military Types of Aircraft (Italy).

173	14307	Italy	*Italian Military Aircraft* (1943). (Aviation, Vol. 42, No. 2, February, 1943, pp. 227-229.)
174	14661	Italy	*New Military Aircraft of the Italian Air Force* (*Photograph*). (Der Deutsche Sportflieger, Vol. 10, No. 7, July, 1943, pp. 112-113.)
175	14779	Italy	*Italian Fighting Aircraft.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 108-110.)
176	14908	Italy Germany ...	*Official Data on Enemy Aircraft* (*Siebel Si.* 204, *Cant Z* 1007 *bis*, *Caproni-Reggiane*, *Junkers* 87*D*, *Fiat R.S.* 14, *Fiat C.R.* 42, *Fiat G.* 50, *Savoia-Marchetti S.M.* 82). (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, pp. 317-318.)

Troop Transport and Ambulance.

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177	14368	G.B.	*Air Sea Rescue Vickers Supermarine Walrus (Photo).* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 305.)
178	14762	U.S.A.	*The Douglas C. 47 as an Amphibious Transport (Photo).* (Flight, Vol. 44, No. 1,812, 16/9/43, p. 304.)
179	14804	Germany	*The Messerschmitt Transport Me. 323 (Detail Drawings).* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, p. 354.)
180	14824	U.S.A.	*A New Douglas Transport, the C-74.* (Aeroplane, Vol. 65, No. 1,686, Sept. 17, 1943, p. 339.)
181	14925	U.S.A.	*Grumman G. 21-B Goose (Air-Sea Rescue).* (Inter. Avia., No. 874, June 30, 1943, p. 10.)
182	14927	Canada	*Norduyn UC-64 Transport.* (Inter. Avia., No. 874, June 30, 1943, pp. 12-13.)
183	15024	U.S.A.	*Wood Transport Aircraft—Curtiss (C-76) Caravan.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 1, January, 1943, p. 96.)
184	15059	Germany	*Junkers Ju. 90B Four-Motor Transport (Photo).* (Aeroplane, Vol. 65, No. 1,688, 1/10/43, p. 378.)
185	15239	U.S.A.	*The Curtiss Commando Transport Aircraft.* (The Bladesman, June, 1943, pp. 15-17.)
186	15298	U.S.A.	*Air Transport of Casualties from Combat Zones.* (J. Stuart, Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, pp. 21-23, 126-128.)

Gliders.

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
187	14318	U.S.A.	*Navy's Bristol XLQ-1 Amphibian Glider (Photo).* (Aviation, Vol. 42, No. 2, February, 1943, p. 393.)
188	14380	U.S.A.	*Mass Assembly Methods Adapted to Army 3-Ton Transport Gliders (CG-4A Maco Glider).* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 30-33, 46, 64.)
189	14685	G.B.	*The Horsa Glider, Part I—Production of Fuselage.* (W. E. Goff, Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 464-472.)
190	14764	G.B.	*Gotha Go. 244 Transport Glider (Recognition Details).* (Flight, Vol. 44, No. 1,812, 16/9/43, p. b.)
191	14781	U.S.A.	*American and British Gliders.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, p. 114.)
192	14930	U.S.A.	*Military Gliding in the U.S.A.* (Inter. Avia., No. 874, June 30, 1943, pp. 16-17.)
193	15066	Germany	*Gotha Twin-Boom Glider — Go. 242 (Photo).* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 357.)
194	15068	U.S.A.	*Hadrian CG-4A Transport Glider (Recognition Details).* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 364.)
195	15069	G.B.	*Airspeed Horsa Transport Glider (Recognition Details).* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 365.)
196	15181	G.B.	*Hotspur Glider (Recognition Details).* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 392.)

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197	15280	U.S.A. ...	*Amphibious Transport Glider (Photo).* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 487.)

Carriers, Navy Fighters.

198	14421	U.S.A. ...	*Aircraft Carrier Arresting Gear (Photo).* (Flying, Vol. 33, No. 2, August, 1943, p. 85.)
199	14449	U.S.A. ...	*The U.S.Naval Air Arm.* (Engineering, Vol. 156, No. 4,051, September 3, 1943, p. 193.)
200	15014	U.S.A. ...	*The Brewster F3A Navy Fighter.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, p. 51.)
201	15063	G.B.	*The Navy's Fighter Pilots.* (Aeroplane, Vol. 65, No. 1,688, 1/10/43, pp. 386-390.)
202	15090	G.B.	*Escort Carriers (Photographs).* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 375.)

Anti-Aircraft.

203	14402	G.B.	*Aircraft Recognition.* (S. A. Saville-Sneath, Penguin Special, Vol. 1 Revised, 1943, pp. 5-192.)
204	14666	Germany ...	*Overhauling German Anti-Aircraft Gun (Photo).* (Der Deutsche Sportflieger, Vol. 10, No. 7, July, 1943, p. 120.)
205	14755	G.B.	*Recognition Schools of A.A. Command.* (Flight, Vol. 44, No. 1,813, Sept. 23, 1943, p. 339.)
206	14786	U.S.A. ...	*The Rôle of the Airship in the War at Sea.* (J. B. Goodman, Air Services, Vol. 28, No. 7, July, 1943, pp. 15-16.)
207	14800	G.B.	*Instruction in Aircraft Recognition.* (Aeroplane, Vol. 65, No. 1,687, 24/9/43, p. 346.)
208	15184	G.B.	*Work of the Royal Observer Corps.* (Flight, Vol. 44, No. 1,815, 7/10/43, pp. 396-398.)
209	15240	U.S.A. ...	*Blimps on Patrol.* (R. G. Picinich, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 116-117, 359, 365.)

Servicing and Maintenance.

210	14249	U.S.A. ...	*Measuring Jig for Checking One Elevator Against Another.* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 48.)
211	14251	U.S.A. ...	*Tool for Loosening Aeroplane Tyre from Rim.* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 52.)
212	14254	U.S.A. ...	*Servicing American Aircraft in Great Britain (Lockheed-Vega Organisation).* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 58.)
213	14302	U.S.A. ...	*Assembly Breakdown of Douglas A-20.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 152-153.)
214	15303	U.S.A. ...	*Army Air Forces Mechanics and Repair Equipment.* (K. Rand, Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, pp. 43-44, 146.)
215	14436	U.S.A. ...	*American Maintenance Personnel.* (H. Rudolph, Flying, Vol. 33, No. 2, August, 1943, pp. 58-60, 184.)
216	14361	U.S.A. ...	*Fighters and Bombers Fly Home for Repair.* (J. Foster, Aviation, Vol. 42, No. 6, June, 1943, pp. 120-123, 364-375.)

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217	14787	U.S.A. ...	*The Maintenance of America's Expanding Air Force.* (Air Services, Vol. 28, No. 7, July, 1943, pp. 20-22.)
218	14985	U.S.A. ...	*Aircraft Service in Combat Areas.* (G. R. Samborn, Preprint of the Society of Automotive Engineers, September 30-October 2, 1943, pp. 1-7.)
219	15007	U.S.A. ...	*Servicing Military Aircraft in Overseas Theatres.* (C. R. Paton and W. C. Could, Preprint of the Society of Automotive Engineers, September 30-October 2, 1943, pp. 1-10.)
220	15266	U.S.A. ...	*Design for Service and Maintenance.* (J. R. Frazer and others, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 297-305, 319.)

AERODYNAMICS AND HYDRODYNAMICS (TAIL BUFFETING, SEAPLANE TANK TESTS, Etc.).

221	12715	Germany ...	*Contribution to Profile Theory V (Theory of the Method of Singularities), Theory VI (Theory of the Method of Singularities).* (H. R. Helmbold, L.F.F., Vol. 20, No. 6, June 30, 1943, pp. 192-195.)
222	12716	Germany ...	*Second Approximation to the Calculation of the Velocity Distribution by the Method of Singularities.* (F. Keune, L.F.F., Vol. 20, No. 6, June 30, 1943, pp. 196-206.)
223	12724	U.S.S.R. ...	*Tail Buffeting.* (G. Abdrashitov, Trans., C.A.W.T., No. 395, Moscow, 1939.) (R.T.P. Translation No. T.M. 1,041.) (N.A.C.A., T.M. 1,041, Feb., 1943.)
224	14614	Germany ...	*Potential Theory Applied to the Scavenging Process of I.C. Engines (Digest).* (F. Schultz-Grunow, A.T.Z., Vol. 45, No. 18, September 25, 1942, pp. 508-509.)
225	14938	G.B.	*Work in an Experimental Seaplane Tank.* (L. Smith, Journal of the Royal Aeron. Society, Vol. 47, No. 393, Sept., 1943, pp. 290-314.)
226	15006	U.S.A. ...	*Use of Generalised Co-ordinates in Flutter Analysis.* (S. J. Loring, Preprint of the Society of Automotive Engineers, September 30-October 2, 1943, pp. 1-33.)
227	15016	U.S.A. ...	*A New 700 m.p.h. Wind Tunnel.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, p. 95.)
228	15222	Italy	*The Influence of Reynolds Number at High Mach Numbers.* (From "Atti di Guidonia," Vol. 1,942, Nos. 67-69, March 10, 1942, pp. 49-92.) (A. Ferri, Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 199-200.)

AIRCRAFT, AIRSCREWS AND ACCESSORIES.

Civil Aircraft Types.

229	14243	U.S.A. ...	*An Amphibious C-47 Cargo Plane (Photo).* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 23.)

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230	14357	U.S.A.	... *Cessna's New Cargo Plane—Loadmaster.* (Aviation, Vol. 42, No. 6, June, 1943, p. 239.)
231	14408	U.S.A.	... *The Douglas C-54 "Skymaster" Cargo Transport.* (W. F. Bori, Flying, Vol. 33, No. 2, August, 1943, p. 34.)
232	14774	U.S.A.	... *American Civil Aircraft (Review).* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 40-53.)
233	14914	G.B. ...	... *Heston Racer (Special Tail Radiator).* (Inter. Avia., No. 872-873, June 18, 1943, II, p. 15.)
234	14924	U.S.A.	... *Cessna "Loadmaster" Transport (Wood).* (Inter. Avia., No. 874, June 30, 1943, p. 10.)
			Civil Aviation and Air Cargo.
235	14242	U.S.A.	... *Applications with the Civil Aeronautics Board for Airline Routes Covering 350,000 Miles (Complete List).* (American Aviation, Vol. 7, No. 5, August 1, 1943, pp. 19-20.)
236	14247	U.S.A.	... *Five-Year Survey of Discomfort Causes Among Aircraft Passengers (United Air Line Study).* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 45.)
237	14252	U.S.A.	... *International Airway Operations.* (E. J. Foley, American Aviation, Vol. 7, No. 5, August 1, 1943, pp. 56, 64.)
238	14255	U.S.A.	... *Truman Committee's Aviation Report.* (American Aviation, Vol. 7, No. 5, August 1, 1943, pp. 16, 66-67, 70.)
239	14297	U.S.A.	... *Transportation in the Post-War Period.* (A. N. Kemp, Aviation, Vol. 42, No. 2, February, 1943, pp. 118, 417-422.)
240	14298	U.S.A.	... *Some Air Transport Statistics of Particular Interest.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 120-121.)
241	14313	U.S.A.	... *Directory of United States Airlines.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 271-272.)
242	14348	U.S.A.	... *America's Domestic Airlines (C.A.A. Survey).* (Aviation, Vol. 42, No. 6, June, 1943, pp. 211, 356.)
243	14350	U.S.A.	... *Controlled Maintenance as Practised by United Air Lines.* (Aviation, Vol. 42, No. 6, June, 1943, pp. 216, 346-349.)
244	14360	U.S.A.	... *Air Transport Exclusively Used for Completing Canadian Water-Power Project.* (D. Baker, Aviation, Vol. 42, No. 6, June, 1943, pp. 114-117, 335-337.)
245	14407	U.S.A.	... *Civil Air Patrol's Courier Air Service.* (G. R. Reiss, Flying, Vol. 33, No. 2, August, 1943, pp. 33, 116-120.)
246	14527	U.S.A.	... *Terminal Handling of Air Cargo.* (K. O. Larson, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 285-288, 304.)
247	14543	Germany	... *Air Traffic in a European High-Speed Transport System.* (C. Pirath, Flughafen, Vol. 11, No. 4, May, 1943, pp. 1-4.)
248	14956	U.S.A.	... *The Air Transport Market in Latin America.* (J. P. Van Zandt, Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 649-652.)

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249	15032	U.S.A. ...	*Air Cargo To-day and its Influences in the Post-War World.* (L. Welch Pogue, Journal of Aeronautical Science (Review Section), Vol. 2, No. 3, March, 1943, pp. 31-39.)
250	15252	U.S.A. ...	*The Future of Aviation.* (R. S. Damon, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 214, 247, 285.)

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251	14468	G.B. ...	*Post-War Transport Aircraft (Contd.).* (E. P. Warner, Engineering, Vol. 156, No. 4,052, September 10, 1943, pp. 216-217.)
252	14528	U.S.A. ...	*New Windshield Developments.* (A. L. Norse, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 289-293, 304.)
253	14662	Germany ...	*On Aircraft Shell Structures.* (Der Deutsche Sportflieger, Vol. 10, No. 7, July, 1943, pp. 114-115.)
254	14926	U.S.A. ...	*Flying Wing Cages Aircraft Project (Kaiser).* (Inter. Avia., No. 874, June 30, 1943, pp. 11-12.)
255	14929	G.B. ...	*Saunders-Roe Giant Flying Boat Project.* (Inter. Avia., No. 874, June 30, 1943, p. 13.)
256	14987	U.S.A. ...	*Experience with the Use of Magnesium in Aircraft.* (J. C. Mathes, Preprint of the Society of Automotive Engineers, September 30-October 2, 1943, pp. 1-11.)
257	15023	Switzerland ...	*Assymmetric Airplanes.* (H. Belart, Journal of Aeronautical Science (Review Section), Vol. 2, No. 1, January, 1943, pp. 23-24.)
258	15040	U.S.A. ...	*Windshield Improvements.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 3, March, 1943, p. 125.)
259	15264	U.S.A. ...	*The Significance of Weight Control.* (J. E. Ayers, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 287-291.)

Testing.

260	14230	U.S.A. ...	*High Altitude Test Chamber.* (Industrial Eng. Chemistry (News Edition), Vol. 21, No. 14, July 25, 1943, p. 1224.)
261	14333	U.S.A. ...	*Flight Testing at Boeing Aircraft Co.—Part III. High Altitude Test Flying.* (E. T. Allen, Aviation, Vol. 42, No. 6, June, 1943, pp. 147-149, 350-355.)
262	14910	France ...	*Flight Tests of SE. 200 and Lat. 631 Giant Flying Boats.* (Inter. Avia., No. 872-873, June 18, 1943, p. 13.)
263	15012	U.S.A. ...	*Pressurising Low-Altitude Airplanes.* (C. W. Morris, Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, pp. 29-33.)
264	15047	U.S.A. ...	*Operating Principles of the Vultee Radio-Type Flight-Test Apparatus.* (H. D. Giffin, Automotive Industries, Vol. 89, No. 4, August 15, 1943, pp. 24-28.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Performance, Stability, etc.
265	14518	G.B. ...	... *Resistance to Speed Factors which Affect High Performance.* (F. W. Roberts, Motor Sport, Vol. 19, No. 9, September, 1943, pp. 186-187.)
266	14679	G.B. ...	... *The Lateral Stability of Aeroplanes—A New Geometrical System of Analysis.* (H. L. Price, Aircraft Engg., Vol. 15, No. 175, September, 1943, pp. 265-269.)
267	15152	G.B. ...	... *A Simple C.G. Determinator.* (R. G. Worcester, Aeronautics, Vol. 9, No. 2, September, 1943, p. 37.)
268	15183	G.B. ...	... *Power/Speed and Weight (Cross Weight Accurately Determined from the Power/Speed Ratio).* (W. Nichols, Flight, Vol. 44, No. 1,815, 7/10/43, pp. 394-395.)
			Airscrews and Helicopters.
269	14255	U.S.A.	... *Twin-Rotor Helicopter Designed by Landgraf (Photo).* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 61.)
270	14326	G.B. ...	... *Reversible Pitch Airscrews (Their Effectiveness as Air Brakes, Landing Brakes and Dive Brakes).* (J. Mullin, Flight, Vol. 44, No. 1,811, September 9, 1943, pp. 283, 284-285.)
271	14351	U.S.A.	... *Propeller Dolly.* (Aviation, Vol. 42, No. 6, June, 1943, p. 219.)
272	14438	U.S.A.	... *Problems of Routine Propeller Balancing.* (J. T. Farrah, Aeronautical Sciences, Vol. 10, No. 7, July, 1943, pp. 209-212.)
273	14765	G.B. ...	... *A Review of the Present Position and Future Outlook of the Constant-Speed Airscrews.* (L. G. Fairhurst, Flight, Vol. 44, No. 1,812, 16/9/43, pp. 311-314.)
274	15008	U.S.A.	... *Analysis of Captured Composite Propeller Blade.* (W. L. Greene and A. R. Crocker, Preprint of the Society of Automotive Engineers, September 30-October 2, 1943, pp. 1-7, Figs. 3-5.)
275	15029	U.S.A.	... *Dual Rotation Propeller.* (Journal of Aeronautical Science (Review Section), Vol. 2, So. 1, January, 1943, p. 99.)
276	15103	U.S.A.	... *Current Trends in Propeller Design.* (T. P. Lambeck, Journal of the S.A.E., Vol. 51, No. 9, September, 1943, pp. 18-20, 23.)
			Patents and Devices.
277	14272	G.B. ...	... *Compound for Cleaning the "Organic" Glass Nose Sections of Modern Aircraft.* (Plastics, Vol. 7, No. 76, September, 1943, pp. 389-390.)
278	14338	U.S.A.	... *High Output Generating Systems for Aircraft.* (W. F. Fell, Aviation, Vol. 42, No. 6, June, 1943, pp. 167-170, 330-331.)
279	14346	U.S.A.	... *New Device for Night Landings (American Patent).* (Aviation, Vol. 42, No. 6, June, 1943, p. 198.)

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280	14387	U.S.A.	...	*New Aeroplane Leaf Spring Landing Gear.* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, p. 56.)
281	14429	U.S.A.	...	*A New Method of Treating Carbon Brushes for Aircraft Generators so as to Offset High Altitude Effects.* (Flying, Vol. 35, No. 2, August, 1943, pp. 140, 144.)
282	15013	U.S.A.	...	*The Horse-power Meter for Aircraft.* (J. C. Luttrell and W. A. Petrasek, Journal of Aeronautical Science (Review Section), Vol. 2, No. 6, June, 1943, pp. 35-39.)

Airports.

ITEM NO.	R.T.P. REF.			TITLE AND JOURNAL.
283	14246	U.S.A.	...	*Construction of Idlewild Airport (Designed to be the World's Largest Airport) (Photograph).* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 41.)
284	14385	U.S.A.	...	*Compound Controls Airport Dust.* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, p. 45.)
285	14405	U.S.A.	...	*Airports at Sea.* (E. R. Armstrong, Flying, Vol. 33, No. 2, August, 1943, pp. 27-29, 176-180.)
286	14545	Germany	...	*Structural Features of Aerodrome Runway Foundations (Methods of Surfacing and Use of Available Materials).* (Wittig, Flughafen, Vol. 11, No. 4, May, 1943, pp. 8-9.)
287	14546	Germany	...	*Soviet Instructions for the Maintenance of Aerodromes in Winter.* (Flughafen, Vol. 11, No. 4, May, 1943, p. 10.)
288	14547	Germany	...	*The Significance of Soil Conditions for Aerodrome Installations in the Light of New Scientific Research (Concluded).* (Von George Kaven, Flughafen, Vol. 11, No. 4, May, 1943, pp. 11-15.)
289	14629	Germany	...	*The Use of Aircraft for Attack on Agricultural Pests.* (Flughafen, Vol. 2, No. 2, Feb., 1943, pp. 8-13.)
290	14631	Germany	...	*Construction and Design of Runways on American Aerodromes.* (C. Gerlach, Flughafen, Vol. 2, No. 2, Feb., 1943, pp. 1-4.)
291	14632	Germany	...	*Principles and Standards for Swiss Aerodrome Construction and Design—II.* (Flughafen, Vol. 2, No. 3, March, 1943, pp. 1-7.)
292	14633	Germany	...	*The Significance of Soil Conditions for Aerodrome Installations in the Light of New Scientific Research.* (G. Kaven, Flughafen, Vol. 2, No. 3, March, 1943, pp. 9-11.)
293	14634	Germany	...	*Drem System of Lights for Night Landing.* (Flughafen, Vol. 2, No. 3, March, 1943, pp. 12-13.)
294	14635	Germany	...	*Ground Organisation for Civil Transport (Planning Post-War Aerodromes in France).* (Flughafen, Vol. 2, No. 3, March, 1943, p. 14.)
295	14753	G.B. ...	...	*Manchester's Ringway Airport Plans.* (Flight, Vol. 44, No. 1,813, September 23, 1943, p. 335.)
296	15306	U.S.A.	...	*Airport Hazards.* (B. Kelly, Flying and Industrial Aviation, Vol. 33, No. 3, September, 1943, pp. 51-53, 118-123.)

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			Training in Aeronautics.
297	14404	U.S.A. ...	*Special Devices for Training Aviation Students.* (S. Johnson, Flying, Vol. 33, No. 2, August, 1943, pp. 24-26, 168-172.)
298	14406	U.S.A. ...	*Britain's Women Flyers in the A.T.A. (Air Transport Auxiliary Service).* (P. Gower, Flying, Vol. 33, No. 2, August, 1943, pp. 30-32, 98.)
299	14571	G.B.	*Civil Flying.* (Engineer, Vol. 176, No. 4,575, September 17, 1943, p. 226.)
300	15149	G.B.	*Specialised Training in Aeronautics.* (O. Stewart, Aeronautics, Vol. 9, No. 2, September, 1943, p. 27.)

ENGINES AND ACCESSORIES.

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
			Named Types.
301	14300	Germany ...	*Main Bearing Supports of Merceaes-Benz D.B. 601A Engine (Sketch).* (Aviation, Vol. 42, No. 2, February, 1943, p. 149.)
302	14310	U.S.A. ...	*Representative American Aircraft Engines for* 1943. (Aviation, Vol. 42, No. 2, February, 1943, pp. 243-246.)
303	14311	U.S.A. ...	*Specification Tables of American, Allied and Enemy Aircraft, Engines and Components.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 255-262.)
304	14782	U.S.A. ...	*American Aircraft Engines.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 116-120.)
305	14783	U.S.A. ...	*British Aircraft Engines.* (Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 120-122.)
306	14919	U.S.A. ...	*Lycoming GO-435 Air-Cooled Flat 6 (200 h.p.).* (Inter. Avia., No. 872-873, June 18, 1943, pp. 17-18.)
307	15035	U.S.A. ...	*The New Lycoming GO-435 Six-Cylinder Horizontally Opposed 210 h.p. Engine (Photo).* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 3, March, 1943, p. 61.)
308	15052	U.S.A. ...	*Ford 500 h.p. Liquid-Cooled Tank Engine (Photo).* (Automotive Industries, Vol. 89, No. 4, August 15, 1943, p. 48.)
309	15071	France ...	*A New French Engine—Bearn 6D.* (Flight, Vol. 44, No. 1,814, Sept. 30, 1943, p. 366.)
310	15175	Germany ...	*The Argus A.S. 410 12-Cylinder Engine (Photo).* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 391.)
311	15213	Sweden ...	*New Swedish 2,500 h.p. Aero Engine,* (F. Mannerstedt, Flying, No. 18, 1943.)
			Special Types.
312	14211	G.B.	*Wartime Use of Electric Motors.* (Mechanical World, Vol. 114, No. 2,956, August 27, 1943, pp. 235-237.)
313	14383	U.S.A. ...	*Chrysler Diesel Engines (M-12 Diesel Marine Engine and Ind-3 Industrial Diesel Engine).* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 42, 138.)

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314	14445	G.B.	*The Economic Limitations of the Coal-Dust Engine.* (From "Die Warme," Vol. 65, 1942, pp. 159-165.) (Engineering, Vol. 156, No. 4,051, September 3, 1943, pp. 183-185.)

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315	14344	U.S.A. ...	*Engine Installation of Inboard Nacelle on the Boeing Flying Fortress (Sketch).* (Aviation, Vol. 42, No. 6, June, 1943, p. 191.)
316	14532	U.S.A. ...	*Probable Trend of Post-War Aircraft Power Plant Installation Design (Two-Engined Family Plane) (Abstract).* (F. M. Bondor, S.A.E. Journal, Vol. 51, No. 8, August, 1943, p. 32.)
317	14599	Germany ...	*Modern Developments in Piston Designs.* (E. Mahle, A.T.Z., Vol. 45, No. 21, November 10, 1942, pp. 569-579.)
318	14626	U.S.A. ...	*Bullet Proof Fuel and Oil Lines (Self-Sealing) (U.S.A.).* (A.T.Z., Vol. 45, No. 20, 25/10/42, p. 553.)
319	14675	Germany ...	*Three German Engine Fuel Systems (B.M.W. 132 K and 132 N, Bramo Fafnir 323 P-1, and B.M.W. 801).* (Aircraft Engg., Vol. 15, No. 175, September, 1943, pp. 248-253.)
320	14900	Switzerland ...	*The Design of Large Centrifuges (in Diameter 6,000 r.p.m.).* (P. Suter, Schweizer Archiv., Vol. 3, No. 2, February, 1937, pp. 38-40.)

Pumps, Turbines, Superchargers.

321	14268	G.B.	*Pumps for Very Hot Liquids.* (Plastics, Vol. 7, No. 76, September, 1943, pp. 411-412.)
322	14525	U.S.A. ...	*The Effect of Injection Pumps on Cold Starting.* (M. M. Roensch, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 277-279.)
323	14620	Germany ...	*Scintilla Injection Pump and Nozzle.* (A.T.Z., Vol. 45, No. 20, 25/10/42, pp. 559-561.)
324	14759	G.B.	*Development of Aircraft Supercharger.* (R. P. Gordon Jones, Flight, Vol. 44, No. 1,813, September 23, 1943, pp. 342-347.)
325	15158	G.B.	*Blackburn Supercharger Patent.* (Aeronautics, Vol. 9, No. 2, September, 1943, p. 58.)
326	13218	G.B.	*Hydraulic Turbine Practice of the T.V.A.* (H. J. Petersen and J. F. Roberts, Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 193-194.)
327	15219	G.B.	*Practical Turbine Lubrication.* (S. R. O'Dette, Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 194-196.)

Accessories (Carburettors, Synchronizers, etc.).

328	13265	U.S.A. ...	*Gaskets Made of Copper Mesh.* (Automotive Industries, Vol. 89, No. 1, 1/7/43, p. 43.)
329	14250	U.S.A. ...	*Rubber-Coated Copper Mesh for Gaskets.* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 51.)
330	14295	G.B.	*Pneumatic Journal Bearing (Patent).* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, p. 383.)

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331	14370	G.B. ...	... *M.A.P. Exhibition of Aero Engine Accessories.* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 311.)
332	14388	U.S.A.	... *Automatic Engine Speed Synchronizer.* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, p. 72.)
333	14519	G.B. ...	... *Sparking Plug Research.* (Motor Sport, Vol. 19, No. 9, September, 1943, p. 197.)
334	14529	U.S.A.	... *Carburation for the Aircraft Engine.* (F. J. Wiegand, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 294-303.)
335	14588	Germany	... *A New Solex Carburettor.* (A.T.Z., Vol. 45, No. 19, 10/10/42.)
336	14628	U.S.A.	... *Spark Plug Insulator (U.S.A.).* (A.T.Z., Vol. 45, No. 20, 25/10/42, pp. 558-559.)
337	14790	U.S.A.	... *The Curtiss Automatic Engine Speed Synchronizer.* (Air Services, Vol. 28, No. 7, July, 1943, p. 42.)
338	14793	G.B. ...	... *Silver-Plated Bearings for I.C. Engines (Patent).* (Metal Industry, Vol. 63, No. 13, Sept. 24, 1943, p. 201.)
339	14951	U.S.A.	... *Cylinder and Ring Life with Porous Chromium Plated Rings.* (T. C. Jarrett, Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 633-635.)
340	15108	U.S.A.	... *The Possibilities of Shaved Gears for Aircraft Engines.* (A. W. Harris, Journal of the S.A.E., Vol. 51, No. 9, September, 1943, pp. 329-335, 344.)
341	15109	U.S.A.	... *Intake Systems for Aircraft Engines.* (C. T. Doman, Journal of the S.A.E., Vol. 51, No. 9, September, 1943, pp. 334-343.)
342	15249	U.S.A.	... *Automatic Synchronizer Controls Engine Speed.* (Aero Digest, Vol. 43, No. 1, July, 1943, p. 207.)

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343	14236	U.S.A.	... *Centrifugal Pump Performance as a Function of Specific Speed.* (A. J. Stepanoff, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 629-647.)
344	14467	G.B. ...	... *Flexible Shaft Couplings.* (W. A. Tuplin, Engineering, Vol. 156, No. 4,032, September 10, 1943, p. 214.)
345	14524	U.S.A.	... *Wartime Replacement Parts (including Engine Trouble Chart).* (R. Cass, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 269-276, 279.)
346	14526	U.S.A.	... *Cranking Power and Torque Requirements for Starting Diesel Engines at Sub-Zero Temperatures.* (H. L. Knudsen, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 280-284.)
347	14537	U.S.A.	... *Development and Standardisation of Approved Methods for the Preservation of Engines and Spare Parts Against Corrosion.* (A. Ayers, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 49-50.)

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348	14794	G.B. ...	... *Corrosion of Magnesium (from Contact with Carburettor De-Icing Fluids).* (Metal Industry, Vol. 63, No. 13, Sept. 24, 1943, p. 201.)
349	14836	G.B. ...	... *Eliminating Erosion in Continuously Operating Turbines.* (Mechanical World, Vol. 114, No. 2,958, September 10, 1943, p. 304.)
350	15022	U.S.A.	... *Cyclone Combustion—A New 16 mm. Instructional Sound Motion Picture.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 1, January, 1943, pp. 11-15.)
			Thermodynamics.
351	14239	U.S.A.	... *Rating Supercharged Engines on the Basis of the Mean Temperature of the Cycle (with Discussion).* (R. Miller, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 685-696.)
352	14240	U.S.A.	... *Inlet-Air-Temperature Correction in a Roots Supercharger (with Discussion).* (F. A. Hiersch, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 697-700.)
353	14831	G.B. ...	... *Quick Starting of Steam Turbines—Heating Effects Accompanying High Pressure Operation.* (Mechanical World, Vol. 114, No. 2,958, Sept. 10, 1943, pp. 286-287.)
			Testing.
354	14339	U.S.A.	... *Adjustable Orifices for Aircraft Engine Testing.* (J. P. Green, Aviation, Vol. 42, No. 6, June, 1943, pp. 175-176.)
355	14352	U.S.A.	... *Braniff Assembly Stand for Engine Rear Sections.* (Aviation, Vol. 42, No. 6, June, 1943, p. 219.)
356	14585	Germany	... *Formulæ for the Contact Pressure in Straight Teeth Spur Gears.* (H. Glanbitz, A.T.Z., Vol. 45, No. 19, 10/10/42, pp. 515-523.)
357	14591	Germany	... *Test of Replacement Material for Gear Wheels.* (M. Ulrich, A.T.Z., Vol. 45, No. 22, November 25, 1942, pp. 595-600.)
358	14676	G.B. ...	... *Regeneration of Test Bed Power.* (Aircraft Engg., Vol. 15, No. 175, September, 1943, pp. 254-256, 269-270.)
359	14725	G.B. ...	... *A Method of Measuring Amplitudes of Vibration of Rotating Shafts.* (J. A. Mitchell, J. Scientific Inst., Vol. 20, No. 8, August, 1943, p. 134.)
360	15166	Germany	... *Development and Results of Comparative Fuel Tests Carried Out at the Ludwigshafen-Oppar with C.F.R. and I.C. Test Engines.* (E. Singer, Ol. and Kohle., Vol. 37, No. 40, October 22, 1941, pp. 795-799.)
361	15250	U.S.A.	... *Motor Fuel Supply System for Engine Test Rooms.* (A. F. Holler, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 209-210, 281.)
			FUELS AND LUBRICANTS.
			Liquid Fuels.
362	14288	G.B. ...	... *Post-War Petrol.* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, p. 365.)

https://doi.org/10.1017/S0368393100140726 Published online by Cambridge University Press

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363	14534	U.S.A. ...	*Fuels and Lubricant Specifications for U.S. Army Ground Forces.* (G. A. Round, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 33-36.)
364	14549	Germany ...	*German Standardisation of Generator Fuels.* (Flughafen, Vol. 11, No. 4, May, 1943, p. 18.)
365	14844	U.S.A. ...	*Portable Pipeline Carrying Gasoline and Water to Battle Fronts.* (National Petroleum News, Vol. 35, No. 31, August 4, 1943, pp. 6-7.)
366	14845	U.S.A. ...	*Where We Stand on Aviation Gasoline.* (National Petroleum News, Vol. 35, No. 31, August 4, 1943, pp. 18-20.)
367	15110	U.S.A. ...	*Fuel Requirements for Tanks.* (Journal of the S.A.E., Vol. 51, No. 9, September, 1943, p. 344.)

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368	14215	G.B.	*Alternative Fuels for Internal Combustion Engines.* (W. J. Walker, Mechanical World, Vol. 114, No. 2,956, August 27, 1943, pp. 246-249.)
369	14283	G.B.	*Alternative Fuels. Part II—Producer Gas (Survey of Methods Adopted in Switzerland).* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, pp. 343-348.)
370	14292	G.B.	*Air-Gas Mixing Valves for Producer Gas Plants.* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, pp. 377-379.)
371	14382	U.S.A. ...	*Producer Gas for Motor Transport—Part I.* (E. A. Allcut, Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 38-41.)
372	14485	G.B.	*Use of Gaseous Fuels for I.C. Engines (including the Erren Cycle).* (W. J. Walker, Mechanical World, Vol. 114, No. 2,957, September 3, 1943, pp. 277-280.)
373	14883	U.S.A. ...	*Volumetric Behaviour of Methane.* (R. H. Olds and others, Industrial and Engineering Chemistry, Vol. 35, No. 8, August, 1943, pp. 922-924.)
374	15051	U.S.A. ...	*Producer Gas for Motor Transport—Part II.* (E. A. Allcut, Automotive Industries, Vol. 89, No. 4, August 15, 1943, pp. 38-44, 60.)
375	15129	U.S.A. ...	*Valuable By-Products from Sewage Treatment Processes (Fertilizer, Gas, Grease, etc.).* (E. J. Cleary, Scientific American, Vol. 169, No. 3, September, 1943, p. 106.)
376	15197	G.B.	*Producer Gas and Alternative Gaseous Fuels for Road Vehicles. (Collection of Abstracts continued from Report No. 9,163 B.)* (Institution of Automobile Engineers, No. 1,943/12, 1943, pp. 1-23.)

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379	14595	Germany	... *Compounded Lubricating Oil.* (E. Thurn, A.T.Z., Vol. 45, No. 22, November 25, 1942, pp. 612-613.)
380	14611	Germany	... *Changes in the Lubricating Oil of Engine Operated with Suction Gas Generators.* (E. Thurn, A.T.Z., Vol. 45, No. 18, September 25, 1942, pp. 496-501.)
381	14621	Germany	... *Lubricating Oil from Whale Oil.* (A.T.Z., Vol. 45, No. 20, 25/10/42, p. 547.)
382	14648	G.B. ...	... *The Lubrication of Mechanisms and Automatic Devices.* (Electronic Engineering, Vol. 16, No. 187, September, 1943, p. 167.)
383	14771	G.B. ...	... *Oil Cleaning—Survey of Available Information. Section I—Oil Contamination by Extraneous Impurities.* (L. Rosenfeld, Institute of Automobile Engs., July, 1943, pp. 3-11.)
384	14879	U.S.A.	... *Deterioration of Lubricating Oils.* (J. J. Jacobs and D. F. Othmer, Industrial and Engineering Chemistry, Vol. 35, No. 8, August, 1943, pp. 883-889.)
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391	14291	G.B. ...	... *Crankcase Oil Dilution as a Cause of Cylinder and Bearing Wear.* (E. V. Paterson, The Automobile Engineer, Vol. 33, No. 446, September, 1943, pp. 373-374.)

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393	14586	Germany ...	*Determination of the Metal Content of Used Lubricating Oils* (*Spectroscopic*). (H. Graff and L. Nenninger, A.T.Z., Vol. 45, No. 19, 10/10/42, pp. 523-525.)
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395	14615	Germany ...	*Errata to Mixture Scavenging, p.* 418, 420. (A.T.Z., Vol. 45, No. 18, November 25, 1942, p. 509.)
396	15167	Germany ...	*The Knock Rating of Fuel Mixtures* (*Estimation of Components*). (F. Jantsch, Ol. and Kohle., Vol. 37, No. 40, October 22, 1941, pp. 799-801.)
397	15170	Germany ...	*Requirements for Reference Fuels.* (O. Widmaier, Ol. and Kohle, Vol. 37, No. 40, October 22, 1941, pp. 806-808.)
398	15171	Germany ...	*Determination of Knock Intensity.* (E. Schuch, Ol. and Kohle., Vol. 37, No. 40, October, 1941, pp. 808-810.)
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401	14172	U.S.A. ...	*The Useful Data to be Derived from Fatigue Tests.* (J. O. Almen, Metal Progress, Vol. 44, No. 2, August, 1943, pp. 254-261.)
402	14440	U.S.A. ...	*Buckling of Aluminium-Alloy Columns and Plates.* (H. L. Langhaar, Aeronautical Sciences, Vol. 10, No. 7, July, 1943, pp. 218-222.)
403	14443	U.S.A. ...	*Space Limitation and Optimum Spring Design* (*Revision*). (R. H. Carter, Aeronautical Sciences, Vol. 10, No. 7, July, 1943, p. 208.)
404	14450	G.B.	*Working Stresses in Aluminium-Alloy Structures.* (Engineering, Vol. 156, No. 4,051, September 3, 1943, p. 195.)
405	14470	Germany ...	*Strength Characteristic of Electric Arc Welded Steel Plates.* (H. Cornelius and F. Bollenrath, L.F.F., Vol. 20, No. 6, June 30, 1943, pp. 175-180.)
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408	14490	G.B. ...	...	*Vibration Testing.* (Electrician, Vol. 131, No. 3,404, August 27, 1943, pp. 203-205.)
409	14512	G.B. ...	...	*A Stress-Strain Curve for the Atomic Lattice of Mild Steel in Compression.* (S. L. Smith and W. A. Wood, Proceedings of the Royal Society, Vol. 181, No. 984, Sept. 24, 1942, pp. 72-83.)
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MATERIALS.

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422	13883	G.B. ...	...	*Light Metals and Prefabrication of Buildings.* (Light Metals, Vol. 6, No. 67, August, 1943, pp. 381-395.)
423	13885	G.B. ...	...	*Magnesium Hygiene.* (Light, Metals, Vol. 6, No. 67, August, 1943, p. 397.)
424	13927	G.B. ...	...	*Aluminium in Post-War Reconstruction.* (R. Hammond, Engineer, Vol. 176, No. 4,568, 30/7/43, pp. 94-96.)

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429	14229	U.S.A. ...	*Magnesite and Magnesium Compounds Production in the U.S.A.* (Industrial Eng. Chemistry (News Edition), Vol. 21, No. 14, July 25, 1943, p. 1220.)
430	14274	G.B.	*Self-Ignition Temperatures for Magnesium.* (Plastics, Vol. 7, No. 76, September, 1943, p. 390.)
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438	14704	G.B.	*New High Vacuum Technology for the Production of Metallic Magnesium.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 446.)
439	14706	Germany ...	*Aluminium/Sodium—Sulphate Reaction.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 447.)
440	14707	G.B.	*The Travers' Process for Preparing Al. Surfaces for adhesion of Electro-Deposits.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 447.)
441	14709	Germany ...	*Anodizing Magnesium Alloys.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 452.)
442	14710	Russia ...	*Casting Properties of Al.-Si. and Al.-Cu. Alloys.* (Light Metals, Vol. 6, No. 68, September, 1943. p. 452.)

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457	13945	G.B. ...	... *Antimony and Tungsten Position of Supplies.* (Times, Trade and Engg., Vol. 53, No. 954, Aug., 1943, p. 10.)

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474	14833	G.B. ...	... *Tin in White Metal Bearings.* (Mechanical World, Vol. 114, No. 2958, 10/9/43, pp. 292-296.)
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475	14072	Germany	... *Accuracy of Moulded Threads in Plastic Material.* (Kunststoffe, Vol. 32, No. 4, April, 1943, pp. 113-124.) (K. Mehdorn, Engineers Digest, Vol. 4, No. 6, June, 1943, pp. 172-174.)
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482	14263	G.B.	*Impregnating Media for Cable Covering and General Insulation.* (Plastics, Vol. 7, No. 76, September, 1943, p. 388.)
483	14265	Italy	*Plastics for Chemical Plant (Report from "Materie Plastische" 1942/11/26).* (G. Lombardo, Plastics, Vol. 7, N. 76, September, 1943, pp. 391-399.)
484	14266	G.B.	*Metallizing Plastics (Continued).* (E. E. Halls, Plastics, Vol. 7, No. 76, September, 1943, pp. 400-407.)
485	14267	G.B.	*Urea and Alkyd Resins in Water-Repellent Coatings.* (Plastics, Vol. 7, No. 76, September, 1943, pp. 408-410.)
486	14269	G.B.	*Resinoids and Other Plastics as Film Formers. XX—Problems of Polymerization.* (B. J. Brajnikoff, Plastics, Vol. 7, No. 76, September, 1943, pp. 414-424.)
487	14270	G.B.	*Ethyl Cellulose—New Products.* (Plastics, Vol. 7, No. 76, September, 1943, p. 424.)
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490	14340	U.S.A. ...	*Points on Plastics in Aircraft Engineering (Part III).* (J. Sasso, Aviation, Vol. 42, No. 6, June, 1943, pp. 178-180, 356-361.)
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492	14553	G.B.	*Aircraft Plastics—Part I.* (W. Nichols, British Plastics, Vol. 15, No. 172, September, 1943, pp. 192-198.)
493	14554	G.B.	*A Plastics Liquid Glue for Bonding Metals on Wood.* (British Plastics, Vol. 15, No. 172, September, 1943, p. 198.)
494	14555	G.B.	*A Visit to America (including Account of American Use of Plastics).* (H. V. Potter, British Plastics, Vol. 15, No. 172, September, 1943, pp. 199-200.)
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497	14563	G.B. ...	... *Stratosphere Test Chamber made of Transparent Acrylic Plastics.* (British Plastics, Vol. 15, No. 172, September, 1943, p. 218.)
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507	14992	U.S.A.	... *High-Altitude Test Chamber Built of Transparent Acrylic Sheet.* (Modern Plastics, Vol. 20, No. 10, June, 1943, p. 74.)
508	14993	U.S.A.	... *Plastic Map and Data Case for Aircraft.* (Modern Plastics, Vol. 20, No. 10, June, 1943, p. 75.)
509	14994	U.S.A.	... *Plastic Nameplates for Army and Navy Equipment.* (Modern Plastics, Vol. 20, No. 10, June, 1943, p. 75.)
510	14995	U.S.A.	... *Spare Lamp Box for Big Bombers (Made of Plastic).* (Modern Plastics, Vol. 20, No. 10, June, 1943, p. 74.)
511	14997	U.S.A.	... *Seaplane Floats Made of Plastic-Bonded Plywood.* (Modern Plastics, Vol. 20, No. 10, June, 1943, p. 84.)
512	14998	U.S.A.	... *Unlimited Revolutions for Gun Turrets. (The Use of Plastics in the Power Transmission Unit.)* (Modern Plastics, Vol. 20, No. 10, June, 1943, pp. 85-87.)

Rubber (Nat. and Syn.).

513	13932	U.S.A.	... *Synthetic Rubber Production in the U.S.A.* (Engineering, Vol. 156, No. 4045, 23/7/43, p. 68.)
514	13963	U.S.A.	... *Vinylidere Choloride Polymers.* (R. C. Reinhardt, Ind. and Eng. Chem., Vol. 35, No. 4, April, 1943, pp. 422-428.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
515	13973	U.S.A. ...	*The U.S. Synthetic Rubber Programme.* (W. J. Murphy, Ind. and Eng. Chem., Vol. 21, No. 11, 10/6/43, pp. 864-877.)
516	14055	U.S.A. ...	*Effect of Petroleum Products on Buna S. Vulcanizates.* (R. E. Morris and others, Ind. and Eng. Chemistry (Ind. Edition), Vol. 35, No. 6, June, 1943, pp. 646-649.)
517	14221	U.S.A. ...	*American Production of Butadiene—Review of Processes Employed, etc.* (P. K. Frolich, C. E. Morrell, Industrial and Eng. Chemistry (New Edition), Vol. 21, No. 14, 25/7/43, pp. 1138-1145.)
518	14234	U.S.A. ...	*Effectiveness of Shear-Stressed Rubber Compounds in Isolating Machinery Vibration.* (B. C. Madden, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 617-624.)
519	14253	U.S.A. ...	*Non-Inflammable Sponge Made from Koroseal (Plasticized Polyvinyl Chloride).* (American Aviation, Vol. 7, No. 5, 1/8/43, p. 56.)
520	14289	G.B.	*Rubber—Natural and Synthetic Supplies.* (C. Ridley, The Automobile Engineer, Vol. 33, No. 440, September, 1943, pp. 366-368.)
521	14345	U.S.A. ...	*Hycar Synthetic Rubber (Data Sheets).* (Aviation, Vol. 42, No. 6, June, 1943, pp. 195-197.)
522	14444	G.B.	*U.S. Government Synthetic Rubber Plant.* (Engineering, Vol. 156, No. 4051, 3/9/43, pp. 181-183.)
523	14457	G.B.	*Rubber Producing Dandelions in Sweden.* (Nature, Vol. 152, No. 3848, 31/7/43, p. 131.)
524	14491	G.B.	*Electrical Properties of Neoprene.* (Electrician, Vol. 131, No. 3404, 27/8/43, pp. 207-208.)
525	14493	G.B.	*The Molecular Structure of Rubber.* (H. P. Stevens, Chemistry and Industry, Vol. 62, No. 37, 11/9/43, p. 351.)
526	14566	G.B.	*Flexible Polystyrene Sheet.* (British Plastics, Vol. 15, No. 172, September, 1943, p. 240.)
527	14716	U.S.A. ...	*Use of the Shore Durometer for Measuring the Hardness of Synthetic and Natural Rubbers (with Discussion).* (R. H. Taylor, A.S.T.M., No. 123, August, 1943, pp. 25-30.)
528	14817	G.B. ...	*A New Synthetic Rubber—"Paracon."* (Nature, Vol. 152, No. 3854, 11/9/43, p. 297.)
529	14847	U.S.A.	*Synthetic Tyres Pass Rigid Test.* (National Petroleum News, Vol. 35, No. 31, 4/8/43, p. 24.)

Wood and Plywood.

530	13744	U.S.A.	*The Manufacture of Curved Plywood.* (T. D. Perry, Mechanical World, Vol. 114, No. 2955, 20/8/43, pp. 204-207.)
531	14056	U.S.A. ..	*Thermal Conductivity Nomographs for Wood.* (D. S. Davis, Ind. and Eng. Chemistry (Ind. Edition), Vol. 35, No. 6, June, 1943, p. 673.)
532	14212	G.B.	*Wood Cellulose Manufacture (Flowsheet No. 116).* (Mechanical World, Vol. 114, No. 2956, 27/8/43, pp. 241-242.)

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533	14223	U.S.A.	*Chemically Treated Wood in War and Industry.* (W. P. Arnold, Industrial and Eng. Chemistry (New Edition), Vol. 21, No. 14, 25/7/43, pp. 1168-1171.)
534	14271	G.B.	*Advisory Panel on Wood.* (Plastics, Vol. 7, No. 76, September, 1943, p. 376.)
535	14276	G.B.	*Engineering Aspects of Plywood.* (Plastics, Vol. 7, No. 76, September, 1943, p. 390.)
536	14372	U.S.A.	*American Timbers.* (Nature, Vol. 152, No. 3853, 4/9/43, p.259.)
537	14562	G.B.	*New German Type of Processed Wood (Pressband).* (British Plastics, Vol. 15, No. 172, September, 1943, p. 216.)
538	14719	U.S.A.	*Discussion of Paper on Stress-Strain Relations in Timber Beams (Douglas Fir).* (A.S.T.M., No. 123, August, 1943, pp. 45-47.)
			Glass and Ceramics.
539	13759	U.S.A.	*Glass Gauges.* (American Exporter, Vol. 133, No. 1, July, 1943, p. 32.)
540	13974	U.S.A.	*Shatterproof Material for Windows, "Lumapane."* (Ind. and Eng. Chem. (New Edition), Vol. 21, No. 11, 10/6/43, p. 892.)
541	14447	G.B.	*Glass for Precision Gauges.* (Engineering, Vol. 156, No. 4051, 3/9/43, p. 188.)
			Silver and Gold.
542	14504	G.B.	*Precipitation in Single Crystals of Silver-Rich and Copper-Rich Alloys of the Silver Copper System.* (F. W. Jones and others, Proceedings of the Royal Society, Vol. 181, No. 985, 31/12/42, pp. 154-168.)
543	14507	G.B.	*The Hardness of Primary Solid Solutions with Special Reference to Alloys of Silver.* (J. H. Frye and W. Hume-Rothery, Proceedings of the Royal Society, Vol. 181, No. 984, 24/9/42.)
544	14015	U.S.A.	*Detection of Gold in Plating.* (M. Lerner, Ind. and Eng. Chem. (Anal. Ed.), Vol. 15, No. 6, 17/6/43, p. 416.)
			Cement, Concrete.
545	14472	G.B.	*The Frost Resistance of Concrete.* (A. E. Collins, Journal of the Society of Chemical Industry, Vol. 62, No. 8, August, 1943, pp. 113-116.)
546	14720	U.S.A.	*Discussion of Paper on Effect of Height of Test Specimens on Compressive Strength of Concrete.* (A.S.T.M., No. 123, August, 1943, pp. 48-49.)
547	14721	U.S.A.	*Discussion of Report of Air-Permeability Method for Determining Fineness of Cement.* (A.S.T.M., No. 123, August, 1943, pp. 49-50.)
			Leather, Cork, Paper.
548	13972	U.S.A.	*Manufactured Abrasives—Old and New.* (R. R. Ridgway, Ind. and Eng. Chem. (New Ed.), Vol. 21, No. 11, 12/6/43, pp. 858-862.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
549	14264	G.B. ...	... *Thermal Conductivity of Various Heat Insulating Materials (Cork, Glass Wool, Cellulose Plastics, etc.).* (Plastics, Vol. 7, No. 76, September, 1943, p. 388.)
550	14460	G.B. ...	... *Acid Neutralization in Insulating Papers.* (Nature, Vol. 152, No. 3848, 31/7/43, p. 140.)
551	14841	G.B. ...	... *Care of Leather Belting.* (Mechanical World, Vol. 114, No. 2958, 10/9/43, p. 305.)
			Crayons, Paints, Lacquers.
552	13865	U.S.A.	... *Determination of Specific Gravity of Dry Paint Pigments.* (I. Baker and C. Martin, Ind. and Eng. Chemistry, Vol. 15, No. 4, 15/4/43, p. 279.)
553	14285	G.B. ...	... *Controlling Pre-heating Temperatures for Welding by the Use of Temperature Indicating Crayons and Paint.* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, p. 359.)
554	14286	G.B. ...	... *Production of High-Grade Lacquer Finishes.* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, p. 360.)
555	14492	G.B. ...	... *Shellac—its Uses in Modern Industry and in War-time.* (A. J. Gibson, Chemistry and Industry, Vol. 62, No. 37, 11/9/43, p. 346.)
556	14556	G.B. ...	... *Fabric Doping (New Du Pont Lacquer).* (British Plastics, Vol. 15, No. 172, September, 1943, p. 202.)
			General Properties of Metals.
557	14046	Germany	... *Plastic Properties of Crystals and Metals (Book Review).* (T. Paschl, Z.A.M.M., Vol. 22, No. 6, Dec., 1942, pp. 366-367.)
558	14071	Germany	... *Ageing in Cast Iron* (from "Die Giesserei," Vol. 19, No. 21, Oct., 1942, p. 358). (E. Piwowarsky, Engineers' Digest, Vol. 4, No. 6, June, 1943, p. 172.)
559	14195	U.S.A.	... *Early Detection of Fatigue Cracks.* (Metal Progress, Vol. 44, No. 1, July, 1943, p. 96.)
560	14199	U.S.A.	... *Intergranular Corrosion.* (J. H. G. Monypenny, Metal Progress, Vol. 44, No. 1, July, 1943, pp. 104-105.)
561	14241	U.S.A.	... *A Discussion on Embrittlement Cracking and How to Prevent it.* (A. A. Berk and W. C. Schroeder, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 701-711.)
562	14290	U.S.A.	... *Bearing Alloys—an Investigation of the Corrosion Problem.* (L. Raymond, The Automobile Engineer, Vol. 33, No. 440, September, 1943, p. 369.)
563	14670	G.B. ...	... *Measurement of Grain Size.* (H. M. Malies, Metal Industry, Vol. 63, No. 12, 17/9/43, p. 182.)
			B. Fabrication.
			Welding and Riveting.
564	13293	U.S.A.	... *Automatic Riveting.* (Scientific American, Vol. 169, No. 2, August, 1943, p. 90.)

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565	13884	G.B. ...	... *Salvaging Imperfect Aluminium Castings by Atomic-Hydrogen Welding.* (Light Metals, Vol. 6, No. 67, Aug., 1943, p. 396.)
566	13931	G.B. ...	... *Automatically Controlled Spot-Welding Machine.* (Engineering, Vol. 156, No. 4,045, 23/7/43, pp. 66-67.)
567	14196	U.S.A.	... *Under-Water Resistance Welding.* (Metal Progress, Vol. 44, No. 1, July, 1943, pp. 97-98.)
568	14201	U.S.A.	... *Good Penetration at High Welding Rates.* (L. K. Stringham, Metal Progress, Vol. 44, No. 1, July, 1943, p. 106.)
569	14488	G.B. ...	... *Armour Plate Welding.* (Electrical Review, Vol. 133, No. 3430, 20/8/43, p. 242.)
570	14530	U.S.A.	... *Cold Welding.* (S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 25-31.)
571	14589	Germany	... *The Elin Electric Welding Process (air shielded electrode).* (A.T.Z., Vol. 45, No. 19, 10/10/42, p. 531.)
572	14654	G.B. ...	... *Fusion Welding Processes—A Survey of Some Techniques Available for Aluminium Alloys.* (Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 491-494.)
573	14708	G.B. ...	... *Spot-Welding of Aluminium-Clad Steel.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 452.)
574	14796	G.B. ...	... *Welding Aluminium-Iron Alloys (Patent).* (Metal Industry, Vol. 63, No. 13, 24/9/43, p. 202.)
			Heat Treatment.
575	13169	U.S.A.	... *Converting Furnaces from Oil to Coal Firing. Application of Concession Methods to Boiler and Metallurgical Furnaces.* (Mechanical Eng., Vol. 65, No. 8, August, 1943, pp. 573-580.)
576	13184	G.B. ...	... *Correlative Foundry Practice and Quality of Light Alloy Castings.* (H. G. Warrington, Mechanical World, Vol. 114, No. 2953, 6/8/43, pp. 147-150.)
577	13886	G.B. ...	... *Control in Aluminium Foundries.* (Light Metals, Vol. 6, No. 67, August, 1943, pp. 397-398.)
578	14076	Germany	... *Nitriding Process and Steel Corrosion* (Stahl and Eisen, Vol. 62, No. 23, June 42, pp. 489-490). (G. Hieber, Engineers' Digest, Vol. 4, No. 6, June, 1943, pp. 180-181.)
579	14100	G.B. ...	... *The Uses of Controlled Atmospheres in the Metal Industries.* (Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1535-1540-1544.)
580	14173	U.S.A.	... *Thin Case Hardening with Radio Energy.* (V. W. Sherman, Metal Progress, Vol. 44, No. 2, August, 1943, pp. 261, 294.)
581	14180	U.S.A.	... *Melting, Alloying, Heating Aluminium and Alloy Ingot.* (R. R. LaPelle, Metal Progress, Vol. 44, No. 2, August, 1943, pp.276-282.)
582	14189	U.S.A.	... *Case Hardening Large Gears with High Frequency Current.* (G. C. Riegel, Metal Progress, Vol. 44, No. 1, July, 1943, pp.78-83.)
583	14193	U.S.A.	... *On the Quenching Process.* (Metal Progress, Vol. 44, No. 1, July, 1943, pp. 94-95.)

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584	14200	U.S.A. ...	*Minimising Hardening Strains.* (B. J. Shepherd, Metal Progress, Vol. 44, No. 1, July. 1943, p. 105.)
585	14204	U.S.A. ...	*Increasing the Yield of Electric Furnaces.* (E. F. Walther, Metal Progress, Vol. 44, No. 1, July, 1943, pp. 111-112.)
586	14275	G.B.	*Induction Heating of Moulds.* (Plastics, Vol. 7, No. 76, September, 1943, p. 390.)
587	14284	G.B.	*Pressed Pistons (Advanced Technique in Forging Light Wrought Alloys).* (The Automobile Engineer, Vol. 33, No. 440, September, 1943, pp. 349-359.)
588	14401	G.B.	*Heat Treatment Plant for Steel Tools.* (Engineer, Vol. 176, No. 4574, 10/9/43, pp. 213-214.)
589	14464	G.B.	*Heat-Treatment Plant for Tools.* (Engineering, Vol. 156, No. 4052, 10/9/43, p. 206.)

Surface Protection (Plating, etc.).

590	13328	G.B.	*Protective Finishes for Bearing Surfaces in Apparatus.* (Machinery, Vol. 63, No. 1607, 29/7/43, p. 130.)
591	13643	G.B.	*Descaling and Pickling Processes, Pt. II (cont.).* (Silman, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1015-1023.)
592	13684	G.B.	*Descaling and Pickling Processes, Pt. II* (cont.). (H. Silman, Sheet Metal Industries, Vol. 18, No. 196, 30/8/43, pp. 1385-1390.)
593	13733	G.B.	*Salvaging Worn Surface Plates by Chromium Plating.* (Machinery, Vol. 63, No. 1610, 19/8/43, p. 217.)
594	13840	G.B.	*New Method of Copper Plating (High Speed Cyanide Bath).* (Engineering, Vol. 156, No. 4,050, 27/8/43, p. 164.)
595	13880	G.B.	*Chromium Plating for Drills, Taps and Reamers.* (Light Metals, Vol. 6, No. 67, Aug., 1943, pp. 366-370.)
596	13889	G.B.	*Water Repellent Coatings on Aluminium.* (Light Metals, Vol. 6, No. 67, Aug., 1943, pp. 413-414.)
597	13924	G.B.	*Control of Ammonia in the Electrodeposition of Brass.* (J. H. Monaweck, Metal Industry, Vol. 63, No. 4, 23/7/43, pp. 59-60.)
598	14191	U.S.A. ...	*Electroplating Metals (Data Sheet).* (Metal Progress, Vol. 44, No. 1, July, 1943, p. 88a.)
599	14484	G.B.	*Developments in Electroplating.* (Mechanical World, Vol. 114, No. 2957, 3/9/43, pp.274-276, 280.)
600	14688	G.B.	*Surface Protection of Magnesium Alloys....* (N. Parkinson and J. W. Cuthbertson, Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 473-475.)
601	14713	G.B.	*Surface Protection of Magnesium (Phosphoric-Acid Process).* (Light Metals, Vol. 6, No. 68, September, 1943, pp. 454-456.)

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			Casting and Drawing.
602	13640	G.B.	*Two Stage Drawing of Cylindrical Cups.* (H. W. Swift, Sheet Metal Industries, Vol. 18, No. 197, June, 1943, pp. 995-1000, 1009.)
603	13726	G.B.	*Plastic Treatment of Porous Castings.* (Machinery, Vol. 63, No. 1610, 19/8/43, p. 203.)
604	13848	G.B.	*Two Stage Drawing of Cylindrical Cups.* (H. W. Swift, Engineering, Vol. 156, No. 4050, 27/8/43, p. 178-180.)
605	13960	G.B.	*Casting Technique for Plastics.* (New Material known as " Thermocast " having Ethyl Cellulose Base.) (V. E. Yarsley, Times, Trade and Eng., Vol. 53, No. 954, Aug., 1943, p. 36.)
606	14102	G.B.	*Two Stage Drawing of Cylindrical Cups.* (H. W. Swift, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1547-1552.)
607	14184	G.B.	*Improving the Mould Drawing* (Technical Bulletin, August, 1943.) (Institution of Production Engineers, Vol. 22, No. 8, August, 1943, pp. 54-56.)
608	14393	G.B.	*Direct Cooling Process of Casting Metal Ingots.* (H. F. James, Metal Industry, Vol. 63, No. 11, 10/9/43, p. 169.)
609	14397	G.B.	*Moulding Sands.* (Metal Industry, Vol. 63, No. 11, 10/9/43, p. 172.)
610	14451	G.B.	*Two Stage Drawing of Cylindrical Cups (contd.).* (H. W. Swift, Engineering, Vol. 156, No. 4051, 3/9/43, pp. 199-200.)
611	14469	G.B.	*Two Stage Drawing of Cylindrical Cups.* (H. W. Swift, Engineering, Vol. 156, No. 4052, 10/9/43, p. 219.)
612	14482	G.B.	*Straightening Magnesium Castings* (Mechanical World, Vol. 114, No. 2957, 3/9/43, p. 272.)
613	14583	G.B.	*The Production of Malleable Iron Castings.* (J. Roxburgh, Engineering, Vol. 156, No. 4053, 17/9/43, pp. 236-240.)
614	14671	G.B.	*Cores for Magnesium Castings—I.* (N. M. Briskin and G. Walker, Metal Industry, Vol. 63, No. 12, 17/9/43, pp. 183-185.)
615	14797	G.B.	*Cores for Magnesium Castings—II.* (N. M. Briskin and G. Walker, Metal Industry, Vol. 63, No. 13, 24/9/43, pp. 203-204.)
			Rolling, Milling, Cutting.
616	13174	G.B.	*The Milling of Marine Turbine Blades.* (E. L. Spray, Machinery, Vol. 63, No. 1606, August, 1943, pp. 85-88.)
617	13637	G.B.	*Rolling, Processing and Testing Tinplate (contd.).* (W. E. Hoare and E. S. Hedges, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 975-978.)
618	13638	G.B.	*Cold and Hot Rolling of Metals* (RTP Translation, No. 1735). (O. Emicke and K. H. Lucas, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 979-987.)

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619	14101	Germany ...	*Cold and Hot Rolling of Metals.* (O. Emicke and K. H. Lucas, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1541-1544.)
620	14214	G.B. ...	*Cutting of Plate Cams.* (J. A. Park, Mechanical World, Vol. 114, No. 2956, 27/8/43, pp. 244-245.)
621	14479	G.B. ...	*Mill Hardening (Direct Heat Treatment from the Rolling Mill).* (J. Winning, Mechanical World, Vol. 114, No. 2957, 3/9/43, pp. 259-262.)
622	14775	G.B. ...	*The Structural Changes Effected in 70:30 Brass Strip by Cold Rolling and Annealing.* (M. Cook and T. L. Richards, Institute of Metals, Vol. 69, No. 8, August, 1943, pp. 351-371.)

Polishing, Machining, Grinding.

623	13535	G.B. ...	*Machining Operations on Marine Diesel Engines.* (Machinery, Vol. 63, No. 1603, 1/7/43, pp. 17-19.)
624	14120	G.B. ...	*An Alternative Method of Machining a Curved Surface.* (Production Engineering Bulletin, Vol. 2, No. 9, August, 1943, p. 403.)
625	14181	G.B. ...	*Thread Grinding.* (W. A. Atley, Institution of Production Engineers, Vol. 22, No. 8, August, 1943, pp. 251-264.)
626	14197	U.S.A. ...	*Rapid Polishing for Preparing Specimens for Inspection.* (Metal Progress, Vol. 44, No. 1, July, 1943, p. 98.)
627	14837	G.B. ...	*Plain Grinding on a Cutter Grinder.* (Mechanical World, Vol. 114, No. 2958, 10/9/43, p. 305.)

Soldering and Brazing.

628	13639	G.B. ...	*The Joining and Protection of Metals.* (D. G. P. Paterson, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 989-992.)
629	13680	G.B. ...	*The Joining and Protection of Metals.* (D. G. P. Paterson, Sheet Metal Industries, Vol. 18, No. 196, 30/8/43, pp. 1349-1354.)
630	14428	U.S.A. ...	*Improvised Solder Pot.* (Flying, Vol. 33, No. 2, August, 1943, p. 140.)
631	14705	Russia ...	*Soldering Aluminium Bronze.* (Baryshnikov, Light Metals, Vol. 6, No. 68, September, 1943, p. 447.)
632	14718	U.S.A. ...	*Conservation of Tin in Soft Solders (with Discussion).* (D. L. Colwell and W. C. Lang, A.S.T.M. No. 123, August, 1943, pp. 37-43.)

Powder Metallurgy.

633	14063	G.B. ...	*Symposium of Powder Metallurgy.* (Metal Industry, Vol. 63, No. 5, 30/7/43, pp. 69-70.)

Machines and Tools.

634	13421	G.B. ...	*Modifying the Profiles of Involute Gears on Gear Grinding Machines.* (H. Walker, Autom. Eng., Vol. 33, No. 436, May, 1943, pp. 181-184.)
635	13426	G.B. ...	*Broken Tools—A New Method of Removal from Drilled Holes.* (Autom. Eng., Vol. 33, No. 436, May, 1943, p. 190.)

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636	13727	G.B. ...	... *Prolonging the Fatigue Life of Machine Parts.* (Nitriding, etc.) (Machinery, Vol. 63, No. 1610, 19/8/43, p. 204.)
637	13728	G.B. ...	... *Spindle Bearings for Machine Tools.* (G. Schlesinger, Machinery, Vol. 63, No. 1610, 19/8/43, pp. 206-210.)
638	13761	U.S.A.	... *Reclaiming Tools.* (American Exporter, Vol. 133, No. 1, July, 1943, p. 36.)
639	14182	G.B. ...	... *New Tools from Scrap High Speed Steel (with Discussion).* (U. F. T. Morris, Institution of Production Engineers, Vol. 22, No. 8, August, 1943, pp. 265-279.)
640	14600	Germany	... *High Speed Tool Steel.* (H. Kalpers, A.T.Z., Vol. 45, No. 21, 10/11/42, pp. 582-585.)

C. Inspection.

X and Gamma Ray Inspection.

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
641	13269	U.S.A.	... *X-Rays for Welds.* (Aircraft Productions, Vol. 5, No. 59, September, 1943, p 414.)
642	14066	G.B. ...	... *A Rapid Gamma Ray Inspection Technique.* (R. C. Woods, Metal Industry, Vol. 63, No. 5, 30/7/43, p. 73.)
643	14192	U.S.A.	... *X-Ray Inspection of Castings (Army, Air Forces' Requirements).* (R. Katz, Metal Progress, Vol. 44, No. 1, July, 1943, pp. 89-94.)
644	14279	G.B. ...	... *An X-Ray Study of the Dissociation of an Alloy of Copper, Iron and Nickel.* (V. Daniel and H. Lipson, Proceedings of the Royal Society, Vol. 181, No. 987, 28/7/43, pp. 368-378.)

Supersonic, Magnetic Inductive Methods, etc.).

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
645	14178	U.S.A.	... *Observation Disc for Microscopic Examinations.* (Metal Progress, Vol. 44, No. 2, August, 1943, p. 275.)
646	14551	G.B. ...	... *List of References on Supersonic Methods of Testing Materials.* (R.T.P.3, Bibliographies, No. 87, August, 1943.)
647	14619	Germany	... *Testing of Composite Bearing Shells by the Thermocolour Process.* (A.T.Z., Vol. 45, No. 20, 25/10/42, p. 547.)
648	14650	Germany	... *Non-Destructive Testing of Non-Ferrous Semi-finished Metal Parts by New Magnetic Inductive Methods.* (W. Schirp, A.T.Z., Vol. 64, No. 3,132, 12/8/43, pp. 413-414.)
649	14701	Germany	... *Electron Microscope Technique for Investigating the Texture of Samples of Fe and Steel Surfaces.* (Light Metal, Vol. 6, No. 68, September, 1943, p. 445.)
650	14711	Germany	... *The Controlled Interrupted Arc for Quantitative Spectro-chemical Analysis.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 452.)

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ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
651	13641	G.B. ...	... *Testing of Continuity of Thin Tin Coatings on Steel.* (R. Kerr, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1001-1002, 1009.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
652	13754	G.B. ...	... *Spark Testing of Steels.* (Mechanical World, Vol. 124, No. 2955, 20/8/43, pp. 223-224.)
653	13863	U.S.A.	... *Determination of Tin in Babbitts, White Metal Alloys and Bronze.* (E. T. Saxer and R. E. Minto, Ind. and Eng. Chemistry, Vol. 15, No. 4, 15/4/43, pp. 261-262.)
654	13887	G.B. ...	... *Determination of Manganese in Aluminium Alloys.* (Factors affecting the accuracy of the Ammonium Persulphate Method.) (G. H. Osborn and W. Stross, Light Metals, Vol. 6, No. 67, August, 1943, pp. 402-406.)
655	14019	G.B. ...	... *Significance of Mechanical Test Properties of Metals.* (H. O'Neill, Engineering, Vol. 156, No. 4044, 16/7/43, pp. 56-58.)
656	14176	U.S.A.	... *Mechanical Aspects of Hardness Testing.* (Metal Progress, Vol. 44, No. 2, August, 1943, p. 273.)
657	14179	U.S.A.	... *Quick Test for Manganese in Steel.* (Metal Progress, Vol. 44, No. 2, August, 1943, p. 275.)
658	14219	G.B. ...	... *Spark Testing of Steel.* (Mechanical World, Vol. 114, No. 2956, 27/8/43, pp. 253-254.)
659	14714	Germany	... *Brinell Tests of Aluminium Alloys (from "Aluminium," 1942/24/347).* (Rajakowicz and Maier, Light Metals, Vol. 6, No. 68, September, 1943, pp. 457-466.)
660	14715	U.S.A.	... *Use and Misuse of the Salt Spray Test as Applied to Electrodeposited Metallic Finishes (with Discussion).* (C. H. Sample, A.S.T.M., No. 123, August, 1943, pp. 19-24.)
661	14840	G.B. ...	... *Spark Testing of Steels.* (Mechanical World, Vol. 114, No. 2958, 10/9/43, pp. 313-314.)

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662	13874	U.S.A.	... *Quality through Inspection* (Ordnance Material). (G. R. Gause, Army Ordnance, Vol. 25, No. 139, July-Aug., 1943, pp. 117-120.)
663	14336	U.S.A.	... *Quality Control Keeps Product Standards High.* (B. Holland, Aviation, Vol. 42, No. 6, June, 1943, pp. 160-162, 320-327.)
664	14683	G.B. ...	... *The Plessey Method of Controlling Quality.* (Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 459-463.)

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Electrical, Magnetic, Electronic.

665	14462	G.B. ...	... *The Cyclotron.* (T. F. Wall, Engineering, Vol. 156, No. 4052, 10/9/43, pp. 201-203.)
666	14495	G.B. ...	... *A Thermostatically Controlled Glass Electrode Apparatus for Ph. Measurements.* (L. F. Le Brocq, Chemistry and Industry, Vol. 62, No. 37, 11/9/43, pp. 350-351.)
667	14505	G.B. ...	... *A New Method of Determining Half-Value Periods from Observations with a Single Geiger Counter.* (A. G. Ward, Proceedings of the Royal Society, Vol. 181, No. 985, 21/12/42, pp. 183-197.)
668	14613	Germany	... *The Development of the Bosch High Tension Magneto.* (F. Schildberger, A.T.Z., Vol. 45, No. 18, 25/9/42, pp. 501-507.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
669	14636	U.S.A. ...	*A Mica Window Geiger Counter Tube for Measuring Soft Radiations.* (D. H. Copp and D. M. Greenberg, Review of Scientific Instruments, Vol. 14, No. 7, July, 1943, pp. 205-206.)
670	14647	G.B.	*Characteristics of Decibel Meters.* (J. H. Jupe, Electronic Engineering, Vol. 16, No. 187, September, 1943, pp. 166-167.)
671	14723	G.B.	*Codes and Conventions in Electronic Apparatus.* (G. Parr, Journal Scientific Inst., Vol. 20, No. 8, August, 1943, pp. 121-124.)
672	14731	G.B.	*The Law of the Moving-Iron Instrument (Abstract).* (G. F. Tagg, Institution of Electrical Engs., Pt. I, Vol. 90, No. 32, August, 1943, p. 367.)
673	14732	G.B.	*Theory of the Force or Torque of Soft-Iron Electrical Instruments (Abstract).* (C. V. Drysdale, Institution of Electrical Engs., Pt. I, Vol. 90, No. 32, August, 1943, pp. 367-368.)
			Physical.
674	14503	G.B.	*A Detector of Condensation in High-Velocity Steam.* (A. M. Binnie and J. R. Green, Proceedings of the Royal Society, Vol. 181, No. 985, 31/12/42, pp. 134-154.)
675	14637	U.S.A. ...	*Simple and Accurate Formula for Barometric Corrections.* (L. Cintra Do Prado, Review of Scientific Instruments, Vol. 14, No. 7, July, 1943, pp. 221-222.)
676	14696	U.S.A. ...	*Piezoelectric Pressure Recorders of High Natural Frequency Vibration Characteristics and Protection Against Interference by Inertia Forces.* (V.D.I. Forschungsheft, No. 407, March-April, 1941, pp. 1-25.) (R.T.P. Translation No. T.M. 1,040.) (W. Gohlke, N.A.C.A., T.M. 1,040, Feb., 1943.)
677	14823	G.B.	*Measurement of Anomalous Viscosity by the Capillary Tube method.* (A. C. Merrington, Nature, Vol. 152, No. 3,851, Aug. 21, 1943.)
			Automatic, Mechanical.
678	14639	U.S.A. ...	*An Automatic Frequency-Controlled Oscillator and Amplifier for Driving Mechanical Vibrators.* (E. V. Potter, Review of Scientific Instruments, Vol. 14, No. 7, July, 1943, pp. 207-215.)
679	14728	G.B.	*Discussion on "The Soot Blower, with Special Reference to the Present Position of Power and Automatic Operation of Mechanical Blowers."* (Institution of Electrical Engs., Pt. II, Vol. 90, No. 16, August, 1943, pp. 259-261.)
			Flow Meters.
680	13188	G.B.	*Telemetering of Fluids—III.* (Mechanical World, Vol. 114, No. 2,953, 6/8/43, p. 165.)
681	14624	Germany ...	*Metering Device for Fluids Under Pressure, Pt. No. 72,004.* (M. Mengl, A.T.Z., Vol. 45, No. 20, 25/10/42, p. 567.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
682	15028	U.S.A. ...	*New Aircraft Fuel Gauge.* (Journal of Aeronautical Science (Review Section), Vol. 2, No. 1, January, 1943, p. 99.)

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683	14641	G.B.	*A Monoscope for Testing Cathode Ray Tubes (Testing Resolving Power by Means of Photographic Films Deposited Internally).* (W. Ehrenberg and G. P. Newton, Electronic Engineering, Vol. 16, No. 187, September, 1943, p. 148.)
684	14816	G.B.	*Principles of the Use of Non-Reflecting Films in Optical Instruments.* (K. M. Greenland, Nature, Vol. 152, No. 3,854, 11/9/43, pp. 290-292.)

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685	14730	G.B.	*The Electrical Amplifying Stethoscope and Phono-Electrocardioscope (Abstract).* (G. E. Donovan, Institution of Electrical Engs., Pt. 1, Vol. 90, No. 32, Aug., 1943, pp. 364-366.)

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686	14206	U.S.A. ...	*Where to Buy (Index of American Manufacturers Classified Under Products).* (Metal Progress, Vol. 44, No. 1, July, 1943.)
687	14244	U.S.A. ...	*Planning for Disposing American Surplus Aircraft.* (American Aviation, Vol. 7, No. 5, August 1, 1943, pp. 24, 46, 60.)
688	14312	U.S.A. ...	*Aviations Directory of the Industry.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 265-271.)
689	14315	U.S.A. ...	*Directory of Aviation Products and Services with List of Suppliers.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 275-383.)
690	14319	U.S.A. ...	*America at War (Aircraft Production Board Chart).* (Aviation, Vol. 42, No. 2, February, 1943, pp. 110, 400-405.)
691	14320	U.S.A. ...	*Financial Outlook for the Aviation Industry.* (H. L. Federman, Aviation, Vol. 42, No. 2, February, 1943, pp. 116, 422.)
692	14349	U.S.A. ...	*Mass Production Overhaul.* (J. H. Connelly, Aviation, Vol. 42, No. 6, June, 1943, pp. 213-215, 378-382.)
693	14369	U.S.A. ...	*The Truman Report on the American Aircraft Industry.* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 310.)
694	14581	G.B.	*Outworking as an Aid to Production.* (Engineering, Vol. 156, No. 4,053, September 17, 1943, pp. 231-232.)
695	14592	Germany ...	*25 Years of German Standards (Review).* (A.T.Z., Vol. 45, No. 22, November 25, 1942, pp. 600-602.)
696	14618	Germany ...	*Preliminary Investigation of War Patent Applications.* (A.T.Z., Vol. 45, No. 20, 25/10/42, p. 563.)

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697	14680	G.B. ...	... *A System of Works Control.* (D. Tiranti, Aircraft Engg., Vol. 15, No. 175, September, 1943, pp. 271-273.)
698	14689	G.B. ...	... *Outworking Schemes for Expanding Production Programmes.* (Aircraft Production, Vol. 5, No. 60, October, 1943, p. 475.)
699	14691	G.B. ...	... *Summary of a Report of the Select Committee on National Expenditure on Aircraft Production.* (Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 477-479.)

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ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
700	13412	G.B. ...	... *Production Engineering Abstracts.* (J. Inst. Prod. Engs., Vol. 22, No. 5, May, 1943, pp. 41-46.)
701	14400	G.B. ...	... *Education of Engineers—No. II.* (Engineer, Vol. 176, No. 4,574, September 10, 1943, pp. 212-213.)
702	14448	G.B. ...	... *The Education and Training of Engineers.* (Engineering, Vol. 156, No. 4,051, September 3, 1943, pp. 191-192, 195-198.)
703	14452	G.B. ...	... *The Engineers' War.* (Engineering, Vol. 156, No. 4,051, September 3, 1943, p. 192.)
704	14454	G.B. ...	... *Education Reconstruction, Cmd.* 6,458 (*H.M.S.O.*, 1943). (Nature, Vol. 152, No. 3,848, July 31, 1943, pp. 120-121.)
705	14455	G.B. ...	... *Adolescence and Some Problems of Youth Training.* (C. W. Valentine, Nature, Vol. 152, No. 3,848, July 31, 1943, pp. 122-124.)
706	14456	G.B. ...	... *Scientific Research in Great Britain.* (Nature, Vol. 152, No. 3,848, July 31, 1943, pp. 129-130.)
707	14458	G.B. ...	... *Education and Training for Engineers.* (Nature, Vol. 152, No. 3,848, July 31, 1943, pp. 137-138.)
708	14459	G.B. ...	... *Science in Soviet Russia.* (J. G. Crowther, Nature, Vol. 152, No. 3,848, July 31, 1943, p. 138.)
709	14483	G.B. ...	... *Education of Foundry Personnel.* (Mechanical World, Vol. 114, No. 2,957, September 3, 1943, pp. 272-273.)
710	14569	G.B. ...	... *W. T. Henley's Education Scheme.* (Engineer, Vol. 176, No. 4,575, September 17, 1943, p. 225.)
711	14573	G.B. ...	... *The Technical Training of Engineering Apprentices.* (Engineer, Vol. 176, No. 4,575, September 17, 1943, p. 232.)
712	14638	U.S.A.	... *Federal Control of Research Activities.* (Review of Scientific Instruments, Vol. 14, No. 7, July, 1943, pp. 195-204.)
713	14798	G.B. ...	... *The Technical Training of Engineering Apprentices.* (Engineer, Vol. 176, No. 4,576, 24/9/43, p. 237.)
714	14822	G.B. ...	... *Integration of Research in the United States.* (R. H. Heindel, Nature, Vol. 152, No. 3,851, 21/8/43, p. 212.)
715	14846	U.S.A.	... *Woman Power in Refineries Surveyed.* (National Petroleum News, Vol. 35, No. 31, August 4, 1943, pp. 22-24.)

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			Aircraft and Engine Production Methods.
716	14194	U.S.A. ...	*Wire-Stitching or Stapling for Unstressed Part of Aircraft (Heat Ducts, Sealing Gaskets, Map Cases, etc.).* (Metal Progress, Vol. 44, No. 1, July, 1943, p. 96.)
717	14216	G.B.	*Engineering Developments in South Africa—Raw Material and Manufacturing Plants.* (Mechanical World, Vol. 114, No. 2,956, August 27, 1943, pp. 250-251.)
718	14321	U.S.A. ...	*Schematic Diagram of Bell Aircraft Wing. Production Lines and Detail Sketch of Installations.* (Aviation, Vol. 42, No. 2, February, 1943, pp. 126-140.)
719	14330	U.S.A. ...	*How Lockheed Builds Steel Drop Tanks.* (R. A. Von Hake, Aviation, Vol. 42, No. 6, June, 1943, pp. 128-133.)
720	14331	U.S.A. ...	*Ford's Centrifugal Cast Cylinders.* (Chester S. Ricker, Aviation, Vol. 42, No. 6, June, 1943, pp. 134-137, 331.)
721	14334	U.S.A. ...	*Duramold Speeds Stabilizer Production.* (H. Chase, Aviation, Vol. 42, No. 6, June, 1943, pp. 150-153, 316-320.)
722	13335	U.S.A. ...	*The Offset Printing of Air Frame Templates (American Practice).* (Machinery, Vol. 63, No. 1,609, 12/8/43, pp. 184-185.)
723	14378	U.S.A. ...	*Thompson Aircraft Products Plant (Mass Production of Hollow Sodium-Cooled Exhaust Valves).* (J. Geschelin, Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 86-88, 205.)
724	14381	U.S.A. ...	*Using Automotive Methods to Speed Automatic Pilot Production.* (J. Geschelin, Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 34-37, 66-70.)
725	14410	U.S.A. ...	*Detroit Builds Warplanes.* (C. Borth, Flying, Vol. 33, No. 2, August, 1943, pp. 44-46, 186-188.)
726	14427	U.S.A. ...	*Mass Producing Fortresses (Photos).* (Flying, Vol. 33, No. 2, August, 1943, p. 138.)
727	14584	Germany ...	*German Aircraft Production and New Development.* (Aeroplane, Vol. 65, No. 1,680, 6/8/43, pp. 153-154.)
728	14664	Germany ...	*Junkers Device for Bending Thin-Walled Light-Metal Tubes.* (Der deutsche Sportflieger, Vol. 10, No. 7, July, 1943, p. 120.)
729	14687	G.B.	*Japanese Aircraft Output.* (Aircraft Production, Vol. 5, No. 60, October, 1943, p. 472.)
730	14702	G.B.	*Repairing Duralumin Airscrew Blades at De Havillands.* (Light Metals, Vol. 6, No. 68, September, 1943, p. 445.)
731	14828	U.S.A. ...	*Ford Applies Mass Production to Big Bombers.* (Machinist, Vol. 87, No. 8, June 12, 1943, pp. 20-34.)
732	14832	G.B.	*Manufacture of Steel Propellers for Aircraft.* (Mechanical World, Vol. 114, No. 2,958, Sept. 10, 1943, pp. 288-291.)

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			Guns, Shells, Tanks, Production Methods.
733	13261	U.S.A. ...	*Production of Gear Sets for Medium Tanks.* (J. Geschelin, Automotive Industries, Vol. 89, No. 2, 1/7/43, pp. 22-27, 69-70.)
734	13326	U.S.A. ...	*The Mass Production of Small Arms Ammunition.* (Machinery, Vol. 63, No. 1,607, 29/7/43, pp. 113-118.)
735	13531	G.B.	*The Manufacture of the Jerrican (Petrol Can).* (Machinery, Vol. 63, No. 1,603, 1/7/43, pp. 1-7.)
736	13671	U.S.A. ...	*Broach Rifling Development (Prod. Methods).* (W. Baumbeck, Mech. Engineering, Vol. 65, No. 6, June, 1943, pp. 401-405.)
737	13677	U.S.A. ...	*Instrument Production at Westinghouse Meter Division.* (Mech. Engineering, Vol. 65, No. 6, June, 1943, p. 30.)
738	13682	G.B.	*Calculation Methods for the Blank Diameters of Drawn Shells.* (Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1363-1364.)
739	13725	U.S.A. ...	*The Mass Production of Steel 75 mm. Shell Cases.* (R. B. Schenck, Machinery, Vol. 63, No. 1,610, 19/8/43, pp. 197, 202.)
740	13877	U.S.A. ...	*New Method of Shell Manufacture (Hydraulic Pressure for Sizing the Body of Shell).* (Army Ordnance, Vol. 25, No. 139, July-Aug., 1943, p. 137.)
741	13878	U.S.A. ...	*Wooden Models Aid Tank Production.* (Army Ordnance, Vol. 25, No. 139, July-Aug., 1943, pp. 138-139.)
742	14105	G.B.	*Standardising Carbide Dies for Shell Case Production.* (Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, p. 1561.)
743	14674	U.S.A. ...	*Bomb Casings Made Faster with Induction Heating.* (Scientific American, Vol. 169, No. 2, Aug., 1943, p. 60.)
744	14733	G.B.	*Vickers Pom-Pom Gun Production: Machining Operations.* (Machinery, Vol. 63, No. 1,613, 9/9/43, pp. 281-286.)
745	14738	G.B.	*Broach Rifling Machine Gun Barrels.* (Machinery, Vol. 63, No. 1,613, 9/9/43, pp. 290-292.)
746	14745	G.B.	*Production of the Vickers Pom-Pom Gun.* (Machinery, Vol. 63, No. 1,612, 2/9/43, pp. 253-260.)
747	14747	G.B.	*The Mass Production of Small Arms Ammunition.* (Machinery, Vol. 63, No. 1,612, 2/9/43, pp. 263-266.)
			General Methods.
748	13258	G.B.	*Wire Spraying in the Production Shop.* (*Technical Bulletin, July,* 1943.) (W. E. Ballard, J. of the Inst. of Production Eng., Vol. 22, No. 7, July, 1943, pp. 34-41.)
749	13262	U.S.A. ...	*Production Illustrations as Applied to Precision Parts.* (R. Kay, Automotive Industries, Vol. 89, No. 1, 1/7/43, pp. 28-31, 62-64.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
750	13267	U.S.A. ...	*Production Short Cuts (Device for Keeping Surface of Kirksite Dies Horizontal for Repair Purposes, Packing Aluminium Alloy Rivets in Cellophane Bags to Reduce Losses, etc.).* (Automotive Industries, Vol. 89, No. 1, 1/7/43, pp. 32-33.)
751	13296	U.S.A. ...	*Industrial Explosives—New Uses for Dynamite.* (F. J. Bryne, Scientific American, Vol. 169, No. 2, August, 1943, pp. 56-58.)
752	13330	G.B.	*Production Power Stamping of Sheet Metal Parts.* (Machinery, Vol. 63, No. 1,609, 12/8/43, pp. 169-172.)
753	13393	G.B.	*Packing and Sorting Machinery* (1933 *to date*). (Sci. Lit. Bibliog. Series, No. 592, 1943.)
754	13480	G.B.	*Transfers Instead of Name Plates.* (Mechanical World, Vol. 113, No. 2,942, 21/5/43, p. 550.)
755	13500	G.B.	*Mechanical Rivet Sorting.* (Mechanical World, Vol. 113, No. 2,945, 11/6/43, p. 637.)
756	13533	G.B.	*Electrolytic Tinplating Process Helps to Conserve Tin.* (Machinery, Vol. 63, No. 1,603, 1/7/43, p. 9.)
757	13594	G.B.	*Determining the Cleanliness of a Metal in the Degreasing Process.* (P. D. Liddiard, Metal Industry, Vol. 63, No. 9, 27/8/43, pp. 130-131.)
758	13650	G.B.	*Principles and Practical Sheets on Welding by Atomic Hydrogen (Part I).* (Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1061-1063.)
759	13651	G.B.	*Welding in Inaccessible Places by Means of the Elin Hafergut Process. (Translation from Elektroschweissung, Vol.* 13, *No.* 8, *pp.* 120-122, 1942.) (P. Ritter, Sheet Metal Industries, Vol. 17, No. 194, June, 1943, pp. 1064-1066.)
760	13692	G.B.	*Control of the Wastage of Arc Welding Electrodes.* (Sheet Metal Industries, Vol. 18, No. 196, 30/7/43, pp. 1431, 1436.)
761	13760	U.S.A. ...	*Efficient Use of Air Grinders.* (American Exporter, Vol. 133, No. 1, July, 1943, p. 35.)
762	13899	G.B.	*Mass Production with A.C. Welding.* (*Iron Age,* 20/5/43, *pp.* 52-57.) (W. J. Brooking, Metropolitan Vickers News Bulletin, No. 875, 16/7/43, p. 9.)
763	13976	U.S.A. ...	*New Method Reduces Time and Labour in Die Production (Algoma Template Dies).* (Sci. Am., Vol. 169, No. 1, July, 1943, p. 11.)
764	14106	G.B.	*Industrial Metal Finishing (Pt. III), Polishing Process.* (H. Silman, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1567-1574, 1602.)
765	14109	G.B.	*Mass Production of Press Formed Parts.* (R. Dewert, Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, pp. 1583-1599, 1602.)
766	14384	U.S.A. ...	*Stop Nut Developed for Use on Plywood.* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, p. 45.)

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767	14425	U.S.A. ...	*Three-Dimensional Drawings Aids Production.* (A. D. Pyeatt, Flying, Vol. 33, No. 2, August, pp. 125-126, 134, 174.)
768	14606	Germany ...	*Saving in Material and Cost by Light Weight Construction.* (A.T.Z., Vol. 45, No. 17, September 10, 1942, pp. 471-474.)
769	14669	G.B.	*Drop Hammer Technique.* (Metal Industry, Vol. 63, No. 12, 17/9/43, pp. 181-182.)
770	14736	G.B.	*The Technique of Wire-Spraying.* (Machinery, Vol. 63, No. 1,613, 9/9/43, p. 288.)
771	14827	U.S.A. ...	*Marking Methods—I.* (A. Throp, Machinist, Vol. 87, No. 8, June 12, 1943, pp. 50E-51E.)

Tools and Equipment.

772	13176	G.B.	*New Circuit Arrangement for Cooling-off Drilling Machine Motors.* (F. J. Johns, Machinery, Vol. 63, No. 1,606, 22/7/43, p. 91.)
773	13182	G.B.	*Direct-Current Adjustable-Speed Drives for Machine Tools.* (C. A. Caldwell, Machinery, Vol. 63, No. 1,606, 22/7/43, pp. 105-108.)
774	13264	U.S.A. ...	*Drill Press Fixture for Replacing Jigs and Templates.* (C. W. Fuller, Automotive Industries, Vol. 89, No. 1, 1/7/43, p. 39.)
775	13334	G.B.	*Broaching and Hobbing Starter Parts having Dual Lead Angles.* (Machinery, Vol. 63, No. 1,609, 12/8/43, pp. 182-184.)
776	13762	U.S.A. ...	*New Process for Stamping Dies (Algoma Template Dies).* (American Exporter, Vol. 133, No. 1, July, 1943, p. 42.)
777	14103	G.B.	*Non-Corrosive Fluxes for Electrical Work.* (Sheet Metal Industries, Vol. 18, No. 197, Sept., 1943, p. 1552.)
778	14121	G.B.	*How to Increase the Life of Your Grinding Wheels.* (Production Engineering Bulletin, Vol. 2, No. 9, August, 1943, pp. 405-407.)
779	14218	G.B.	*Control of High-Speed Twist Drills.* (Mechanical World, Vol. 114, No. 2,956, August 27, 1943, pp. 252-253.)
780	14386	U.S.A. ...	*Ingersoll-Rand Air Buck Jam Riveter (Designed to Work on Curved Cowling, etc.).* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 45, 72.)
781	14426	U.S.A. ...	*Du Pont Explosive Rivets.* (Flying, Vol. 33, No. 2, August, 1943, pp. 130-134.)
782	14465	G.B.	*Heavy-Duty Metal-Cutting Machine.* (Engineering, Vol. 156, No. 4,052, September 10, 1943, p. 207.)
783	14517	G.B.	*Industrial Freezing Equipment (−120°F.).* (Aircraft Production, Vol. 5, No. 58, Aug., 1942, p. 384.)
784	14570	G.B.	*Improved Drill Guard.* (Engineer, Vol. 176, No. 4,575, September 17, 1943, p. 231.)
785	14609	Germany ...	*Simple Tool for Producing Fillets of a given Radius (Junkers).* (A.T.Z., Vol. 45, No. 17, November 10, 1942, p. 481.)

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786	14667	Germany	...	*Mobile Cleaning Equipment for Machine Tools.* (Der Deutsche Sportflieger, Vol. 10, No. 7, July, 1943, p. 121.)
787	14681	G.B. ...	...	*Dynamic Testing Machines.* (Aircraft Engg., Vol. 15, No. 175, September, 1943, p. 273.)
788	14692	G.B. ...	...	*Gravity Die-Casting. Part II, The Rolls-Royce Mechanised Foundry.* (Aircraft Production, Vol. 5, No. 60, October, 1943, pp. 480-488.)
789	14727	G.B. ...	...	*Industrial X-Ray Unit.* (Jo. Scientific Insts., Vol. 20, No. 8, August, 1943, p. 135.)
790	14729	G.B. ...	...	*Discussion on "Electrical Industrial Installation."* (Institution of Electrical Engs., Pt. 2, Vol. 90, No. 16, August, 1943, pp. 267-268.)
791	14735	G.B. ...	...	*Electronic Heaters for Brazing, Soldering and Heat-Treating Operations.* (Machinery, No. 63, No. 1,613, 9/9/43, p. 287.)
792	14740	G.B. ...	...	*Tools for Producing Strip Gauze.* (Machinery, Vol. 63, No. 1,613, 9/9/43, pp. 293-295.)
793	14742	G.B. ...	...	*Spindle Bearings for Machine Tools.* (G. Schlesinger, Machinery, Vol. 63, No. 1,613, 9/9/43, pp. 296-298.)
794	14743	G.B. ...	...	*Equipment for Drilling and Tapping Electrodes for Welding.* (Machinery, Vol. 63, No. 1,613, 9/9/43, pp. 299-300.)
795	14746	G.B. ...	...	*A Milling Head on a Boring Mill.* (Machinery, Vol. 63, No. 1,612, 2/9/43, p. 262.)
796	14748	G.B. ...	...	*Spindle Bearings for Machine Tools.* (G. Schlesinger, Machinery, Vol. 63, No. 1,612, 2/9/43, pp. 267-269.)
797	14749	G.B. ...	...	*Tube in Place of Rolled Bar for Machining (Swedish Practice).* (H. Tornebohm, Machinery, Vol. 63, No. 1,612, 2/9/43, pp. 271-272.)
798	14750	G.B. ...	...	*Device to Damp Vibration and Shock in Machine Operation.* (Machinery, Vol. 63, No. 1,612, 2/9/43, p. 272.)
799	14829	U.S.A.	...	*Filing Machines and Methods.* (J. E. Hyler, Machinist, Vol. 87, No. 8, June 12, 1943, p. 134.)
				Scrap Salvage.
800	14376	U.S.A.	...	*Borings and Turnings Boost Scrap Metal Tonnage.* (W. C. Hirsch, Automotive Industries, Vol. 89, No. 3, August 1, 1943, pp. 17-18, 136.)
801	14684	G.B. ...	...	*Rivet Sorting—Useful Equipment for Sorting and Salvage.* (Aircraft Production, Vol. 5, No. 60, October, 1943, p. 463.)
802	14741	G.B. ...	...	*Salvaging High Speed Cutters.* (Machinery, Vol. 63, No. 1,613, 9/9/43, p. 295.)
803	14744	G.B. ...	...	*Salvage of Porous Castings.* (Machinery, Vol. 63, No. 1,613, 9/9/43, p. 300.)
804	14791	G.B. ...	...	*Reclamation of Non-Ferrous Scrap Metals.* (A. B. Sidey, Metal Industry, Vol. 63, No. 13, Sept. 24, 1943, pp. 194-197.)
				Workers' Welfare.
805	13175	G.B. ...	...	*Fire Danger from Light Alloy Swarf.* (R. Twelvetrees, Machinery, Vol. 63, No. 1,606, 22/7/43, p. 89.)

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806	14171	U.S.A. ...	*Health Aspects of Welding.* (Metal Progress, Vol. 44, No. 2, August, 1943, pp. 253, 290.)
807	14210	G.B.	*Employment of Handicapped Workers in Ford Factory.* (Mechanical World, Vol. 114, No. 2,956, August 27, 1943, p. 234.)
808	14500	G.B.	*Fatigue Following Highly Skilled Work (Abstract).* (F. C. Bartlett, Proceedings of the Royal Society, Vol. 181, No. 986, May 6, 1943, pp. 329-330.)
809	14580	G.B.	*Fire Hazards of Welding Equipment.* (Engineering, Vol. 156, No. 4,053, September 17, 1943, p. 230.)
810	14834	G.B.	*Welfare Equipment for the New Factory.* (J. V. Brittain, Mechanical World, Vol. 114, No. 2,958, September 10, 1943, pp. 296-297.)

TRANSPORT.

Army Vehicles, including Tanks.

811	14377	U.S.A. ...	*Canadian-Built Military Vehicles.* (Automotive Industries, Vol. 89, No. 3, August 1, 1943, p. 19.)
812	14523	U.S.A. ...	*Field Modifications of Ordnance Vehicles.* (H. O. Mathews, S.A.E. Journal, Vol. 51, No. 8, August, 1943, pp. 22-24, 39.)
813	14593	U.S.A. ...	*Motorisation of the U.S. Army.* (A.T.Z., Vol. 45, No. 22, November 25, 1942, pp. 618-619.)
814	14608	Germany ...	*Mobile Repair Units Attached to the N.S.K.K. (Mechanised Transport).* (A.T.Z., Vol. 45, No. 17, September 10, 1942, pp. 480-481.)
815	15045	U.S.A. ...	*Constructional Details of the Karrier (Humber Mark III) Armoured Reconnaissance Car.* (M. W. Bourdon, Automotive Industries, Vol. 89, No. 4, August 15, 1943, pp. 19, 91.)
816	14972	U.S.A. ...	*The Army's 2½-Ton Amphibious Tank (Photos).* (Army Ordnance, Vol. 25, No. 140, Sept.-Oct., 1943, p. 336.)
817	15100	U.S.A. ...	*S.A.E. Test Method to Disclose Climb Power of Army Trucks.* (Journal of the S.A.E., Vol. 51, No. 9, September, 1943, p. 16.)

Trailers and Lorries.

818	14587	Germany ...	*Standardised Loading for Transport Vehicle.* (W. Vorwig, A.T.Z., Vol. 45, No. 19, 10/10/42, pp. 526-529.)
819	14627	Germany ...	*Cross-Country Characteristics of Normal Motor Vehicles.* (E. A. Wedemeyer, A.T.Z., Vol. 45, No. 20, 25/10/42, pp. 554-558.)
820	15229	G.B.	*Back Axle Drive or All Wheel Drive for Heavy Lorry with Trailer.* (From A.T.Z., Vol. 45, No. 13, July, 1942, pp. 360-366.) (F. Strohhacker, Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 216-220.)

Brakes and Tyres.

821	14550	G.B.	*List of Selected References on Brakes and Brake Linings.* (R.T.P.3 Bibliographies, No. 86, Aug., 1943.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
822	14597	Germany ...	*Errata to "Lammellar Brakes," pp.* 501-503. (A.T.Z., Vol. 45, No. 22, November 25, 1942, p. 617.)
823	14612	Germany ...	*Lammellar (Disc) Brake for Transport Vehicles.* (H. Klane, A.T.Z., Vol. 45, No. 18, September 25, 1942, pp. 501-503.)
824	14622	Germany ...	*Errata to Article on Tyres and Tyre Pressures (p.* 358). (A.T.Z., Vol. 45, No. 20, 25/10/42, p. 553.)

Motor Cars.

825	14186	U.S.A. ...	*The Future Automobile.* (Metal Progress, Vol. 44, No. 1, July, 1943, pp. 71, 132.)
826	14590	Germany ...	*Standardised Terms for Motor Car Components—IV (Gears).* (H. Hartel, A.T.Z., Vol. 45, No. 19, 10/10/42, pp. 532-535.)
827	14593	Germany ...	*Nomograph for the Design of Car Springs.* (W. Schmidt, A.T.Z., Vol. 45, No. 22, November 25, 1942, pp. 603-609.)
828	14610	Germany ...	*The Natural Oscillations of a Motor Car.* (E. Marguard, A.T.Z., Vol. 45, No. 18, September 25, 1942, pp. 487-495.)
829	14625	Germany ...	*Production Methods for Motor Car Gear Wheels.* (H. Wittmann, A.T.Z., Vol. 45, No. 20, 25/10/42, pp. 548-555.)

WIRELESS AND ELECTRICITY.

General, including Television.

830	14473	G.B. ...	*The Diode as a Rectifier and a Detector for Weak Signals.* (J. Aharoni, Phil. Mag., Vol. 34, No. 235, August, 1943, pp. 505-521.)
831	14487	G.B. ...	*Radio Standards in America.* (Electrical Review, Vol. 133, No. 3,430, August 20, 1943, p. 238.)
832	14539	G.B. ...	*Frequency Modulation—VI.* (C. Tibbs, Wireless World, Vol. 49, No. 6, July 2, 1943, pp. 168-171.)
833	14546	G.B. ...	*Television After the War—The Case of Multiple Interlacing.* (P. Nagy, Electronic Engineering, Vol. 16, No. 187, September, 1943, pp. 164-165.)
834	14724	G.B. ...	*A Medium and Long-Wave Aerial System for a Radio Laboratory.* (T. B. Rymer, Scientific Inst., Vol. 20, No. 8, August, 1943, pp. 132-133.)
835	14851	U.S.A. ...	*Analysis of Rectifier Operation.* (O. H. Schade, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 341-361.)
836	14854	U.S.A. ...	*Wartime Radio Production.* (R. C. Ellis, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 379-380.)
837	14855	U.S.A. ...	*Radio Standards Go to War.* (H. P. Westman, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 381-384.)

Aircraft and Army Radio.

838	14248	U.S.A. ...	*Radio Noise Filters for Use on Aircraft Electrical Systems.* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 48.)

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
839	14347	U.S.A. ...	*Instrument Approach by Radio Direction Finder (Part II).* (C. E. McIntosh, Aviation, Vol. 42, No. 6, June, 1943, pp. 206-209, 320.)
840	14432	U.S.A. ...	*New Radio Noise Filters.* (Flying, Vol. 33, No. 2, August, 1943, p. 144.)
841	14433	U.S.A. ...	*Bendix Emergency Radio Equipment.* (Flying, Vol. 33, No. 2, August, 1943, p. 144.)
842	14548	Germany ...	*Radio Beacons for Navigation (French Patent No. 865,702).* (W. Pfister, Flughafen, Vol. 11, No. 4, May, 1943, p. 17.)
843	14540	G.B.	*British Army Radio.* (Electronic Engineering, Vol. 16, No. 187, September, 1943, pp. 140-141.)
844	14651	Germany ...	*Rhombus Antennas.* (J. Grosskopf, A.T.Z., Vol. 64, Nos. 31-32, 12/8/43, pp. 415-422.)
845	14665	Germany ...	*Remote Control of Aircraft Models by Means of Radio.* (F. Tröges, Der deutsche Sportflieger, Vol. 10, No. 7, July, 1943, p. 119.)
846	14852	U.S.A. ...	*Radiation from Vee Antennas.* (C. W. Harrison, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 362-364.)
847	15261	U.S.A. ...	*Determination of Directional Characteristics of Aircraft Antennas.* (E. Lovick, Aero Digest, Vol. 43, No. 1, July, 1943, pp. 259-260.)

Short and Ultra-Short Waves.

848	14542	G.B.	*Skip Distance in Short-Wave Transmission.* (T. W. Bennington, Wireless World, Vol. 49, No. 6, July 2, 1943, pp. 160-163.)
849	14654	Germany ...	*Sensitive Current and Voltage Recorder (for Ultra-Short Waves).* (W. Frings, A.T.Z., Vol. 64, Nos. 31-32, 12/8/43, p. 431.)
850	14849	U.S.A. ...	*Beyond the Ultra-Short Waves (Historical Survey and Present Position of Wireless Technique Beyond 300 Megacycles, Wavelength 1 m.).* (G. C. Southworth, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 319-330.)
851	14850	U.S.A. ...	*Tubes for High-Power Short-Wave Broadcast Stations—Their Characteristics and Use.* (G. Chevigny, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 331-340.)

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852	14643	G.B.	*Dust Cored Coils—Part II. Analysis of Losses.* (V. G. Welsby, Electronic Engineering, Vol. 16, No. 187, September, 1943, pp. 149-153.)
853	14645	G.B.	*Matrix Algebra—Solution of Electric Network Problems.* (J. C. Simmonds, Electronic Engineering, Vol. 16, No. 187, September, 1943, pp. 160-161.)
854	14853	U.S.A. ...	*A General Reactance Theorem for Electrical, Mechanical, and Acoustical Systems.* (Dah-You Maa, Proceedings of the Inst. Radio Engineers, Vol. 31, No. 7, July, 1943, pp. 365-371.)

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			Dielectrics.
855	14474	G.B. ...	... *Reflexion and Transmission by Absorbing Dielectrics of Electro-Magnetic Waves in Hollow Tubes.* (L. Pincherle, Phil. Mag., Vol. 34, No. 235, August, 1943, pp. 521-532.)
856	14540	G.B. ...	... *Waves in Dielectric Materials.* (M. Johnson, Wireless World, Vol. 49, No. 6, July 2, 1943, pp 178-181.)
			X and Cosmic Rays.
857	14256	U.S.A.	... *New Million Volt X-Ray Laboratory.* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 62.)
858	14280	G.B. ...	... *Penetrating Non-ionizing Cosmic Rays.* (L. Janossy and G. D. Rochester, Proceedings of the Royal Society, Vol. 181, No. 987, July 28, 1943, pp. 399-408.)
859	14575	G.B. ...	... *Cosmic Static Investigations.* (Engineer, Vol. 176, No. 4,575, September 17, 1943, p. 234.)
860	14652	Germany	... *Investigation of X-Ray Emission by the Slowing Up of Electrons in the Electric Field of the Atomic Core.* (A.T.Z., Vol. 64, No. 31-32, 12/8/43, p. 422.)
			General.
861	14136	G.B. ...	... *Design of Simple Ohmmeters. I, General Principles and Details of a Meter for High Resistances.* (F. L. Hogg, Wireless World, Vol. 49, No. 8, August, 1943, pp. 224-227.)
862	14398	G.B. ...	... *Dehydration of Food by Radio-Frequency Energy.* (V. W. Sherman, Engineer, Vol. 176, No. 4,574, September 17, 1943, pp. 221-222.)
863	14649	G.B. ...	... *"Uno" Circuit Symbols (Stencils).* (Electronic Engineering, Vol. 16, No. 187, September, 1943, p. 168.)
			SOUND, LIGHT AND HEAT.
			Sound Waves and Measurement.
864	14209	G.B. ...	... *The Measurement of Loudness (Mitigation of Plant Noise).* (G. W. Stubbings, Mechanical World, Vol. 114, No. 2,956, August 27, 1943, pp. 231-234.)
865	14576	G.B. ...	... *Sound Attenuation in Air Ducts.* (B. G. Churcher and A. J. King, Engineering, Vol. 156, No. 4,053, September 17th, 1943, pp. 221-222.)
866	14644	G.B. ...	... *Producing and Detecting Supersonic Sound Waves.* (W. P. Bollinger, Electronic Engineering, Vol. 16, No. 187, September, 1943, p. 158.)
			Light Rays, Flame Spectra, etc.
867	14506	G.B. ...	... *Flame Spectra in the Photographic Infra-Red.* (A. G. Gaydon, Proceedings of the Royal Society, Vol. 181, No. 985, December 31, 1942, pp. 197-209.)

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868	14516	G.B. ...	... *Some Experiments on the Trichromatic Theory of Vision.* (H. V. Walters, Proceedings of the Royal Society, Vol. 181, No. 984, September 24, 1942, p. 106.)
869	14520	G.B. ...	... *Illumination Measurements.* (C. Mogford, Electrical Review, Vol. 133, No. 3,426, July 23, 1943, pp. 103-106.)
870	14642	G.B. ...	... *Fluorescent Lamps—A Survey of Old and Recent Development.* (R. Neumann, Electronic Engineering, Vol. 16, No. 187, September, 1943, pp. 154-157.)
871	15042	G.B. ...	... *Short Wave-Length Limit of the Continuous X-Ray Spectrum and Determinations of h/e.* (P. Ohlin, Nature, Vol. 152, No. 3,855, September 18, 1943, pp. 329-330.)
872	15043	G.B. ...	... *Variations of Ultra-Violet and Daylight Rays.* (J. R. Ashworth, Nature, Vol. 152, No. 3,855, September 18, 1943, p. 330.)
873	15277	U.S.A.	... *Range of Vision from an Aircraft (Taking into Account the Atmospheric Refraction).* (G. H. Draper and R. F. Haupt, Aero Digest, Vol. 43, No. 1, July, 1943, p. 473.)

Heat Transmission and Diffusion.

874	14231	U.S.A.	... *Studies of Heat Transmission Through Boiler Tubing at Pressures from 500 to 3,300 lbs.* (W. F. Davidson and others, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 553-591.)
875	14232	U.S.A.	... *Influence of Non-Uniform Development of Heat upon the Temperature Distribution in Electrical Coils and Similar Heat Sources of Simple Form.* (M. Jakob, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 593-605.)
876	14233	U.S.A.	... *The Numerical Solution of Heat Conduction Problems.* (H. W. Emmons, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 607-615.)
877	14374	G.B. ...	... *Temperature of Flame Gases.* (W. T. David, Nature, Vol. 152, No. 3,853, September 4, 1943, p. 278.)
878	14502	G.B. ...	... *Freezing Points of Solutions of Typical Colloidal Electrolytes: Soaps, Sulphonates, Sulphates and Bile Salt.* (S. A. Johnston and J. W. McBain, Proceedings of the Royal Society, Vol. 181, No. 985, December 31, 1942, pp. 119-133.)
879	14510	G.B. ...	... *On the Relation of Debye Theory and the Lattice Theory of Specific Heats.* (M. Blackman, Proceedings of the Royal Society, Vol. 181, No. 984, September 24, 1942, pp. 58-67.)
880	14513	G.B. ...	... *Thermal Insulation at Very Low Temperatures.* (A. H. Cooke and R. A. Hull, Proceedings of the Royal Society, Vol. 181, No. 984, September 24, 1942, pp. 83-93.)

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881	14514	G.B. ...	*The Thermal Diffusion of Radon Gas Mixtures.* (G. E. Harrison, Proceedings of the Royal Society, Vol. 181, No. 984, September 24, 1942, pp. 93-100.)
882	14521	G.B. ...	*Space Heating.* (Electrical Review, Vol. 135, No. 3,426, July 23, 1943, p. 110.)
883	14653	Germany	*New Facts Concerning the Heating and Destruction of Stratified Insulators.* (F. Liebscher, A.T.Z., Vol. 64, No. 31-32, 12/8/43, pp. 423-427.)
884	14784	U.S.A.	*Plastic Heating by Oil.* (J. Le Maire, Commercial Aviation, Vol. 5, No. 5, May, 1943, pp. 139-141.).
885	14819	G.B. ...	*Temperature Gradients in Gaseous Explosions.* (Nature, Vol. 152, No. 3,854, 11/9/43, pp. 303-304.)
886	14867	U.S.A.	*Liquid Methyl Chloride and its Uses as a Refrigerant, etc.* (K. S. Willson and others, Chemical and Engineering News, Vol. 21, No. 15, August 10, 1943, pp. 1254-1261.)
887	14961	U.S.A.	*American Standard Symbols for Heat and Thermodynamics.* (S. A. Moss, Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 669-670.)

PHOTOGRAPHY

(PHOTOGRAPHIC RECONNAISSANCE, HIGH SPEED CAMERAS, Etc.).

ITEM NO.	R.T.P. REF.		TITLE AND JOURNAL.
888	14327	G.B. ...	*Photographic Reconnaissance.* (Flight, Vol. 44, No. 1,811, September 9, 1943, pp. 286-288.)
889	14362	G.B. ...	*Substratosphere Mosquito for Photographic Reconnaissance (Photo).* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, p. 286.)
890	14367	G.B. ...	*Exposing Enemy Secrets by Photographic Reconnaissance.* (Aeroplane, Vol. 65, No. 1,685, 10/9/43, pp. 302-304.)
891	14373	G.B. ...	*Photographic Analysis of Motion.* (E. R. Davies, Nature, Vol. 152, No. 3,853, September 4, 1943, pp. 261-264.)
892	14820	G.B. ...	*Structure of Nickel Oxide by X-Ray Powder Photographic Methods.* (H. P. Rooksby, Nature, Vol. 152, No. 3,854, 11/9/43, p. 304.)
893	15009	U.S.A.	*Motion Analysis by Means of High Speed Photography.* (H. D. Jackes, Preprint of the Society of Automotive Engineers, Sept. 30-Oct. 2, 1943, pp. 1-10.)
894	15044	G.B. ...	*A Giant Camera.* (Nature, Vol. 152, No. 3,855, September 18, 1943, pp. 335-336.)
895	15141	U.S.A.	*High Speed Cameras to Photograph the Detonation Waves of Explosions.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 124.)
896	15228	Germany	*The Zeiss-Ikon Slow-Motion Camera.* (Flugwehr und Technik, Vol. 5, No. 1, Jan., 1943, pp. 24-25.) (Engineers' Digest, Vol. 4, No. 7, July, 1943, pp. 215-216.)

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(THUNDERSTORMS, CLOUDS AND DEW, THE IONOSPHERE).

897	14245	U.S.A. ...	*Thunderstorm Characteristics and Flight Procedures (C.A.B. Safety Bulletin).* (J. A. Browne, American Aviation, Vol. 7, No. 5, August 1, 1943, p. 30.)
898	14541	G.B.	*Exploring the Ionosphere.* (Wireless World, Vol. 49, No. 6, July 2, 1943, pp. 182-183.)
899	14582	G.B.	*The Protection of Buildings Against Lightning.* (Engineering, Vol. 156, No. 4,053, September 17, 1943, p. 232.)
900	14663	Germany ...	*German Meteorological Office Equipment (Photographs).* (Der deutsche Sportflieger, Vol. 10, No. 7, July, 1943, pp. 116-117.)
901	15337	G.B.	*Preliminary Note on Condensation in the Form of Clouds and Dew.* (J. W. Archbold, Philosophical Magazine, Vol. 34, No. 236, Sept., 1943, pp. 632-642.)

PHYSIOLOGY AND AVIATION MEDICINE
(AEROBIOLOGY, DRUGS, ACCELERATION EFFECTS ON PILOTS).

902	14222	U.S.A. ...	*Symposium of Papers on the Production of Synthetic Anti-Malarial Drugs.* 1. Malaria—Public Health and Economic Aspects. 2. Anti-Malarial Screening Tests. 3. Chemistry and Development of Atabrine and Plasmochin. 4. The Economic Impact of the Sulfonamides on the Drug Industry. (Various Authors, Industrial and Eng. Chemistry (New Edition), Vol. 21, No. 14, July 25, 1943, pp. 1147-1162.)
903	14257	U.S.A. ...	*Aeronca's New Light Ambulance Aircraft.* (American Aviation, Vol. 7, No. 5, August 1, 1943, p. 62.)
904	14375	U.S.A. ...	*Aerobiology (Publication of the American Association for the Advancement of Science).* (Edited by F. R. Moulton, Nature, Vol. 152, No. 3,853, September 4, 1943, pp. 258-259.)
905	14416	U.S.A. ...	*Keeping Pilots Fit—the Rôle of the Flight Surgeon.* (J. S. Douglas, Flying, Vol. 33, No. 2, August, 1943, pp. 75, 164-165.)
906	14442	U.S.A. ...	*Medical Research in Some Aspects of Aircraft Design.* (W. E. Russell, J. R. Erwin and H. R. Dettaven, Aeronautical Sciences, Vol. 10, No. 7, July, 1943, pp. 227-231.)
907	14785	U.S.A. ...	*The Rôle of the Flight Surgeon.* (D. N. W. Grant, Air Services, Vol. 28, No. 7, July, 1943, pp. 13-14.)
908	14875	U.S.A. ...	*Chemical Side of Chemotherapy (Production of Sulfa Drugs).* (E. H. Northey, Industrial and Engineering Chemistry, Vol. 35, No. 8, August, 1943, pp. 829-836.)

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909	14963	U.S.A. ...	*Desiccation of Human Blood Plasma (Discussion).* (Mechanical Engineering, Vol. 65, No. 9, Sept., 1943, pp. 676-677.)
910	15139	U.S.A. ...	*Pencillin—New Chemotherapeutic Agent.* (Scientific American, Vol. 169, No. 3, September, 1943, p. 117.)
911	15178	Germany ...	*Effects of Acceleration on Pilots (Experiments Carried Out with a Specially Equipped Ju. 87).* (Flight, Vol. 44, No. 1,815, 7/10/43, p. 391.)
912	15293	U.S.A. ...	*Erythrocytes and Hæmoglobin Values in Acclimatisation Produced by Discontinuous Anoxia.* (J. Aviation Med., Sept., 1942, Vol. 13, No. 3, pp. 170-176.) (J. C. Stickney and E. J. Van Liere, Bulletin of War Medicine, Vol. 4, No. 1, Sept., 1943, pp. 52-53.)
913	15294	U.S.A. ...	*Studies on the Effects of Adding Carbon Dioxide to Oxygen-Enriched Atmospheres in Low Pressure Chambers. II, The Oxygen and Carbon Dioxide Tensions of Cerebral Blood.* (J. Aviation Med., Vol. 13, No. 1 pp. 177-181, Sept., 1942.) (H. Himwich and others, Bulletin of War Medicine, Vol. 4, No. 1, Sept., 1943, p. 53.)
914	15295	U.S.A. ...	*The Influence of Certain Anti-Malarials and Related Agents on Lethal Effects of Anoxia.* (J. Aviation Med., Vol. 13, No. 3, pp. 182-189, Sept., 1942.) (Bulletin of War Medicine, Vol. 4, No. 1, Sept., 1943, p. 53.)
915	15296	Italy	*The Present Position of Mosso's Acapnia Theory.* (Abstract in Luftfahrtmed., 1942, and April, 1943, Vol. 6, p. 257.) (R. Margaria, Bulletin of War Medicine, Vol. 4, No. 1, Sept., 1943, pp. 53-54.)

MATHEMATICS AND PHYSICS.

ITEM NO.	R.T.P. REF		TITLE AND JOURNAL.
916	14238	U.S.A. ...	*A Brief Account of Modern Kinematics (with Discussion).* (A. E. R. de Jonge, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 663-683.)
917	14237	U.S.A. ...	*New Five-Bar and Six-Bar Linkages in Three Dimensions (with Discussion).* (M. Goldberg, Transactions of the A.S.M.E., Vol. 65, No. 6, August, 1943, pp. 649-661.)
918	14281	G.B.	*Some Remarks on the Statistics of Binary Systems.* (G. H. Wannier, Proceedings of the Royal Society, Vol. 181, No. 987, July 28, 1943, pp. 409-411.)
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920	14475	G.B.	*Inversion Formulæ for the Laplace Transformation.* (A. Erdekyi, Phil. Mag., Vol. 34, No. 235, August, 1943, pp. 533-537.)
921	14477	G.B.	*Graphical Differentiation and Integration.* (C. W. Hansel, Phil. Mag., Vol. 34, No. 235, August, 1943, pp. 565-574.)

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922	14496	G.B. ...	... *Newton and the Science of His Age.* (E. N. Da C. Andrade, Proceedings of the Royal Society, Vol. 181, No. 986, May 6, 1943, pp. 227-243.)
923	14497	G.B. ...	... *Newton as an Experimenter.* (Lord Rayleigh, Proceedings of the Royal Society, Vol. 181, No. 986, May 6, 1943, pp. 244-250.)
924	14498	G.B. ...	... *Newton and the Science of To-day.* (Sir James Jeans, Proceedings of the Royal Society, Vol. 181, No. 986, May 6, 1943, pp. 251-262.)
925	14501	G.B. ...	... *The Ultimate Shape of Pebbles, Natural and Artificial.* (Lord Rayleigh, Proceedings of the Royal Society, Vol. 181, No. 985, December 31, 1942, pp. 107-118.)
926	14818	G.B. ...	... *Numerical Fourier Analysis to Twenty-Nine Harmonics.* (M. A. S. Ross, Nature, Vol. 152, No. 3,854, 11/9/43, pp. 702-703.)
927	14821	G.B. ...	... *Proposals for New Basic Physical Postulates.* (H. T. Townsend, Nature, Vol. 152, No. 3,854, 11/9/43, p. 308.)