

1970 No. 1288

## CUSTOMS AND EXCISE

## The Export of Goods (Control) Order 1970

Made - - - 1st September 1970

Coming into Operation 28th September 1970

The Board of Trade, in exercise of the powers conferred upon them by section 1 of the Import, Export and Customs Powers (Defence) Act 1939(a), hereby order as follows:—

*Citation and commencement*

1. This Order may be cited as the Export of Goods (Control) Order 1970 and shall come into operation on 28th September 1970.

*Revocation etc.*

2. The Arms Export Prohibition Orders 1931-37(b) are hereby suspended and the Orders specified in Schedule 2 hereto are hereby revoked:

Provided that any licence or permission granted or having effect under any Order hereby revoked and in force immediately before the commencement of this Order shall have effect in like manner as if it had been granted under the corresponding provisions of this Order.

*Interpretation*

3.—(1) In this Order—

“cattle” means bulls, cows, oxen, heifers and calves;

“Commonwealth” means the Commonwealth preference area as defined in section 2 of the Import Duties Act 1958(c) but excluding Burma, the Republic of Ireland, the Republic of South Africa and Southern Rhodesia;

“goods”, unless otherwise specified, means both used and unused goods;

“sheep” includes rams, ewes and lambs;

“summary conviction” means, in the application of this Order to Northern Ireland, conviction subject to and in accordance with the Petty Sessions (Ireland) Act 1851(d) and any Act amending that Act whether past or future;

“swine” includes pigs of all ages and either sex;

“United Kingdom” includes the Isle of Man;

(a) 1939 c. 69.

(c) 6 & 7 Eliz. 2 c. 6.

(d) 1851 c. 93.

(b) S.R. & O. 1931/413, 1937/525 (Rev. V, pp. 499, 501; 1931, p. 252; 1937, p. 612).

numerical references in Schedule 1 hereto to British Standards are references to the standards so numbered published by the British Standards Institution in the year indicated after such references with such amendments (if any) thereto as may have been made before the making of this Order ;

references in Schedule 1 hereto to percentages of the contents of any goods are references to percentages by weight ;

any other terms which are defined in Schedule 1 hereto have, when used in the context mentioned in the definition, the meaning so ascribed to them ; and

metric units of measurement appearing in Schedule 1 in parenthesis after imperial units of measurement are approximate only, and for the purposes of this Order the imperial units of measurement shall prevail.

(2) The Interpretation Act 1889(a) shall apply to the interpretation of this Order as it applies to the interpretation of an Act of Parliament and as if this Order, the Orders hereby revoked and any other Order mentioned in this Order were Acts of Parliament.

*Prohibitions and restrictions on exportation*

4. Subject to the provisions of this Order—

(i) goods of a description included in Schedule 1 hereto and therein indicated by the letter A are prohibited to be exported from the United Kingdom or shipped as ships' stores ;

(ii) goods of a description included in the said Schedule but not therein indicated by the letter A are prohibited to be exported from the United Kingdom to any port or destination other than a port or destination in the Commonwealth, the Republic of Ireland, the Republic of South Africa or the United States of America, or to be shipped as ships' stores ; and

(iii) goods of any other description are prohibited to be exported from the United Kingdom to any destination in Southern Rhodesia.

*Exceptions*

5.—(1) Subject to paragraph (2) of this Article, nothing in Article 4 of this Order shall be taken to prohibit the exportation of—

*Licensed exports and permitted ships' stores*

(a) any goods under the authority of a licence granted by the Board of Trade, or the shipment of any goods as ships' stores with the permission of the proper officer of Customs and Excise at the port of departure for use on board the ship provided that all conditions attaching to the said licence or the said permission are complied with ;

*Samples*

(b) trade samples of any goods, except goods of a description included in Group 1 of Schedule 1 hereto, if the samples have no saleable value ;

*Aircraft*

(c) (i) any aircraft registered outside the United Kingdom which is being re-exported after temporary importation into the United Kingdom,

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(a) 1889 c. 63.

provided that there has been no change of ownership or registration since such importation ;

- (ii) any aircraft engaged on a scheduled journey as defined in section 24(2) of the Air Corporations Act 1949<sup>(a)</sup> ;

*Hovercraft*

- (d) hovercraft, that is to say, any vehicle which is designed to be supported when in motion wholly or partly by air expelled from the vehicle to form a cushion of which the boundaries include the ground, water or other surface beneath the vehicle, being a vehicle engaged on a scheduled journey as defined in section 24(2) of the Air Corporations Act 1949 ;

*Firearms and Ammunition*

- (e) firearms and ammunition, not being goods of a description included in Group 9 of Schedule 1 hereto, authorised to be held by a valid firearm certificate or shot gun certificate granted or having effect as if granted under the Firearms Act 1968<sup>(b)</sup> or by a valid firearm certificate granted in Northern Ireland under section 1 of the Firearms Act 1920<sup>(c)</sup> and forming part of the personal effects of the holder, if the certificate is produced by the holder with the firearms and ammunition to the proper officer of Customs and Excise at the port of exportation ;

*Channel Islands*

- (f) any goods other than—
- (i) goods of a description included in Group 1 of Schedule 1 hereto ;  
and
- (ii) goods falling within the description of articles manufactured or produced more than 100 years before the date of exportation which is set out in Group 9 of the said Schedule,  
to any port or destination in the Channel Islands ;

*Diamonds*

- (g) diamonds, unmounted, exported—
- (i) by registered letter post, insured box post or air freight, to any destination ; or
- (ii) by insured parcel post to any destination in any territory which is for the time being one of the scheduled territories as defined in the Exchange Control Act 1947<sup>(d)</sup> ;

*Diamond Jewellery*

- (h) articles mounted or set with diamonds, being personal jewellery owned by and in the baggage of or worn or carried by a person leaving the United Kingdom, but not including any article made more than 100 years before the date of exportation ;

*Strategic Goods*

- (i) any goods the re-exportation of which is authorised by a licence granted by the Board of Trade under the Control of Goods (Import Certificates) Order 1951<sup>(e)</sup> if the said licence is duly produced to the proper officer

<sup>(a)</sup> 1949 c. 91.

<sup>(b)</sup> 1968 c. 27.

<sup>(c)</sup> 1920 c. 43.

<sup>(d)</sup> 1947 c. 14.

<sup>(e)</sup> S.I. 1951/1016 (1951 III, p. 548).

of Customs and Excise at the port of shipment or, if the goods are exported by post, to an officer of the Post Office at which they are posted ;

*Live Cattle, Sheep and Swine*

- (j) (i) any animal in respect of which there is duly produced to the proper officer of Customs and Excise at the place of export a licence granted under Article 9(1)(a) of the Exported Animals Protection Order 1964(a);
- (ii) live cattle, sheep and swine from Northern Ireland to the Republic of Ireland ;

*Gifts*

- (k) any goods of a description included in Group 9 of Schedule 1 hereto or eggs, in shell, of domestic poultry, which are contained in a parcel :  
provided that—
  - (i) the parcel is exported by parcel post ;
  - (ii) the goods are the bona fide gift of an individual, who is named and described on the outside of the parcel as the sender (hereinafter called the “donor”), to an individual to whom the parcel is addressed for the benefit of that individual absolutely ;
  - (iii) the value of all the goods in the parcel does not exceed £25 ;
  - (iv) the parcel does not contain any goods which are not a bona fide individual gift ;
  - (v) any declaration required to be made in relation to the parcel contains a full and accurate description by the donor of all the goods contained therein and states that all those goods constitute unsolicited gifts.

In this paragraph “individual” does not include a body corporate or unincorporate or more than one natural person ;

*Pork*

- (l) pork to any port or destination in the Republic of Ireland.

(2) Nothing in paragraph (1) of this Article shall be taken to permit the exportation from the United Kingdom to any destination in Southern Rhodesia of any goods the exportation of which is prohibited by the Southern Rhodesia (United Nations Sanctions) (No. 2) Order 1968(b) as from time to time amended.

*Customs powers to demand evidence of destination which goods reach*

6. Any exporter or any shipper of goods which have been exported from the United Kingdom shall, if so required by the Commissioners of Customs and Excise, furnish within such time as they may allow proof to their satisfaction that the goods have reached either—

- (i) a destination to which they were authorised to be exported by a licence granted for the purposes of this Order, or
- (ii) a destination to which their exportation was not prohibited by this Order ;

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(a) S.I. 1964/704 (1964 II, p. 1352).

(b) S.I. 1968/1020 (1968 II, p. 2683).

and, if he fails to do so, he shall incur a Customs penalty of five hundred pounds unless he proves that he did not consent to or connive at the goods reaching any destination other than such a destination as aforesaid.

*Offences in connection with applications for licences, etc.*

7. If for the purpose of obtaining any licence or permission for the exportation or shipment as ships' stores of any goods any person makes any statement or furnishes any document or information which to his knowledge is false in a material particular or recklessly makes any statement which is false in a material particular he shall be guilty of an offence and liable on summary conviction to a fine not exceeding one hundred pounds, or to imprisonment for a term not exceeding six months, or to both ; and any licence or permission which may have been granted for the exportation or shipment as ships' stores of any goods, in connection with the application for which the false statement was made or the false document or information furnished, shall be void as from the time it was granted.

*Declaration as to goods : powers of search*

8.—(1) Any person who, on any occasion, is about to leave the United Kingdom shall, if on that occasion he is required to do so by an officer of Customs and Excise—

(a) declare whether or not he has with him any goods the export of which from the United Kingdom is subject to any prohibition or restriction under this Order ; and

(b) produce any such goods as aforesaid which he has with him ;

and such officer, and any person acting under his directions, may search that person for the purpose of ascertaining whether he has with him any such goods as aforesaid :

provided that no female shall be searched in pursuance of this paragraph except by a female.

(2) Where at any place in the United Kingdom any person is on any occasion found in circumstances in which it is reasonable to suppose that on that occasion he has communicated, or intends to communicate, with a person about to leave the United Kingdom, the provisions of paragraph (1) of this Article shall apply in relation to the person so found as they apply in relation to a person about to leave the United Kingdom ; and where any person is on any occasion found travelling in the United Kingdom to or from any place in such circumstances as aforesaid, the said provisions shall apply in relation to him as they would apply if, when so found, he had been about to leave the United Kingdom.

(3) Any person who refuses to make a declaration, fails to produce any goods or refuses to allow himself to be searched in accordance with the foregoing provisions of this Article, or who makes a declaration which is false in a material particular, shall be guilty of an offence and liable on summary conviction to a Customs penalty of one hundred pounds, or to imprisonment for a term not exceeding six months, or to both.

*Overlapping descriptions*

9. Where any goods fall within a description included in Schedule 1 hereto and therein indicated by the letter A and also fall within a description included as aforesaid but not so indicated by that letter those goods shall be deemed to fall only within the first-mentioned description.

*Modification and revocation of licences, etc.*

**10.**—(1) Any licence granted by the Board of Trade in pursuance of Article 5(1)(a) or having effect as if so granted may be modified or revoked by them at any time.

(2) Any permission granted by the proper officer of Customs and Excise for the shipment of any goods as ships' stores may be modified or revoked at any time by such officer.

*N. E. Robins,*  
An Assistant Secretary of  
the Board of Trade.

1st September 1970.

## SCHEDULE 1

## GROUP 1

*Aircraft, Arms and Military Stores and Appliances*

Aircraft and components, the following:—

- |  |   |
|--|---|
| (1) Aircraft, assembled or dismantled, other than gliders or sailplanes (unpowered) having a maximum seating capacity of not more than two and a maximum all-up-weight of not more than 1,500 pounds .. .. . | A |
| (2) Specialised parts and components for use in or on aircraft of the kind comprised in (1) above .. .. .  | A |
| (3) Aircraft engines and specialised parts and components thereof ..   | A |

Apparatus and appliances specially designed for use in aircraft, the following:—

- |   |   |
|---|---|
| Anti-g suits .. .. .                    | A |
| Anti-g valves .. .. .                   | A |
| Liquid oxygen converters .. .. .        | A |
| Partial pressure suits .. .. .          | A |
| Pressurised breathing apparatus .. .. . | A |

Appliances for use with arms and apparatus specially designed and intended for land, sea or aerial warfare .. .. .

Appliances, mechanical, designed to produce smoke for military purposes ..

Arms and ammunition and component parts thereof, the following:—

- |   |   |
|---|---|
| (1) Small arms, machine guns and smooth bore guns, the following:—  |   |
| (a) Carbines, pistols (including machine pistols), revolvers, rifles, smooth bore guns .. .. .  | A |
| (b) Machine guns, interrupter gears and mountings for machine guns ..   | A |
| (2) Artillery and projectors, the following:—   |   |
| (a) Cannon, guns, howitzers, military flame throwers, mortars, recoilless rifles, rocket launchers, rocket projectors, tank destroyers .. | A |
| (b) Carriages and mountings and accessories for mountings for items mentioned in sub-head (a) .. .. .                                     | A |
| (c) Military smoke, gas and pyrotechnic projectors .. .. .  | A |
| (3) Ammunition, including projectiles, for any of the weapons mentioned in heads (1) or (2) of this entry .. .. .                         | A |
| (4) Component parts of any of the foregoing .. .. .   | A |

Bayonets and component parts thereof .. .. .	A
Bombs, mines, missiles guided or unguided, rockets, torpedoes, apparatus designed for use therewith, and component parts thereof, the following:—	
(1) Bombs, torpedoes, grenades (including smoke grenades), smoke canisters, rockets, mines, missiles guided or unguided, depth charges, fire bombs, incendiary bombs, and component parts thereof .. .. .	A
(2) Apparatus and devices specially designed for the handling, control, activation, launching, laying, sweeping, clearing, discharging, detonation or detection of items mentioned in head (1) of this entry and component parts thereof .. .. .	A
Bullet-proof clothing .. .. .	A
Centrifugal equipment specially designed for the testing of any item included in Group 1 of this Order .. .. .	A
Computers, aircraft interception .. .. .	A
Construction equipment built to military specifications, specially designed for airborne transport .. .. .	A
Devices designed for the detection of the noxious gases specified in this Group	A
Devices for firing booby traps .. .. .	A
Diving and under-water swimming apparatus, self-contained, of the closed circuit or semi-closed (re-breathing) types, and articles specially designed for use therewith .. .. .	A
Electrically triggered shutters of the carbon injection or photochromic function type having a shutter speed of less than 100 microseconds, other than shutters specially designed for high speed cameras .. .. .	A
Electronic equipment specially designed for military use and component parts thereof .. .. .	A
Equipment specially designed for ground functional testing of the hydraulic systems of military aircraft .. .. .	A
Explosives, propellants and related substances, the following:—	
(1) (a) Ammonium perchlorate .. .. .	A
(b) Cellulose nitrate (in dry or wetted form) .. .. .	A
(c) Dinitrophenol (in dry or wetted form) .. .. .	A
(d) Guanidinium nitrate .. .. .	A
(e) Hydrazine and its derivatives, the following:—	
<i>asym</i> Dimethylhydrazine .. .. .	A
<i>sym</i> Dimethylhydrazine .. .. .	A
Hydrazine in concentrations of 70 per cent. or more .. .. .	A
Hydrazinium nitrate .. .. .	A
Hydrazinium perchlorates .. .. .	A
Methylhydrazine .. .. .	A
(f) Hydrogen peroxide in concentrations of 85 per cent. or more .. .. .	A
(g) Nitric acid, fuming, containing not more than 3 per cent. by weight of water .. .. .	A
(h) Perfluoroguanidines .. .. .	A
(i) Picrates (in dry or wetted form) .. .. .	A
(j) Stabilisers for explosives, the following:—	
<i>sym</i> Diethyldiphenylurea (centralite 1) .. .. .	A
<i>sym</i> Dimethyldiphenylurea (centralite 2) .. .. .	A
<i>asym</i> Diphenylurea .. .. .	A
Ethyldiphenylcarbamate .. .. .	A
Ethyl <i>asym</i> diphenylurea .. .. .	A
Ethyl di- <i>o</i> -tolylcarbamate .. .. .	A
Ethyl N-ethylphenylcarbamate .. .. .	A

Methylasymdiphenylurea .. .. .	A
2-Nitrodiphenylamine .. .. .	A
N-Methyl- <i>p</i> -nitroaniline .. .. .	A
(2) Chemical base high energy solid or liquid fuels specially formulated for military purposes .. .. .	A
(3) Explosives, not elsewhere specified, as defined in Section 3 of the Explosives Act 1875 .. .. .	A
Fire control, range finding and sighting apparatus, the following:	
Fire control, gun laying, night sighting, missile tracking and guidance apparatus .. .. .	A
Range, position and height finders, and spotting instruments specially designed for military purposes .. .. .	A
Aiming devices, electronic, gyroscopic, acoustic and optical, specially designed for military purposes .. .. .	A
Bomb sights, bombing computers, gun sights and periscopes specially designed for military purposes .. .. .	A
Television sighting units specially designed for military purposes ..	A
Component parts of any of the foregoing .. .. .	A
Telemetry and telecontrol apparatus suitable for use with aircraft (piloted or pilotless), missiles (guided or unguided) or space vehicles (guided or unguided) and specialised test equipment therefor .. .. .	A
Fuses and component parts thereof .. .. .	A
Gas masks, respirators and similar protective devices, and face-pieces and filter canisters therefor .. .. .	A
Gilding metal clad steel .. .. .	A
Gun forgings, rough .. .. .	A
Gun turrets, including barbettes, and component parts thereof .. ..	A
Hovercraft, that is to say vehicles designed to be supported when in motion wholly or partly by air expelled from the vehicles to form a cushion of which the boundaries include the ground, water or other surface beneath the vehicles, and components, the following:—	
(1) Hovercraft, assembled or dismantled .. .. .	A
(2) Specialised parts and components for use in or on hovercraft ..	A
(3) Engines for hovercraft .. .. .	A
(4) Specialised parts and components of engines for hovercraft ..	A
Infra-red image-converter tubes .. .. .	A
Instruments or devices capable of automatically measuring the speed of sound <i>in situ</i> in water and rated for differential sensitivity measurements in the proportion of 1 in 5,000 or higher and specialised parts therefor .. ..	A
Equipment containing such instruments or devices .. .. .	A
Kine-theodolites .. .. .	A
Metal cutting and working tools for machine operations, the following:—	
Gun barrel rifling broaches .. .. .	A
Small arms deep hole drills or bars .. .. .	A
Military equipment, the following:—	
Helmets, crash .. .. .	A
Helmets, steel .. .. .	A
Military infra-red equipment and specialised components thereof .. ..	A



## Naval equipment, the following:—

Accumulators (electric storage batteries) of a kind used in the propulsion of submarines, and parts thereof, the following:—

Accumulators, lead acid .. .. .	A
Containers .. .. .	A
Covers .. .. .	A
Plates and grids .. .. .	A
Separators .. .. .	A

Cables, buoyant or near buoyant .. .. . A

Catapults and other similar aircraft launching gear .. .. . A

Compasses and ship's course indicators specially designed for submarines A

Diesel engines of 1,500 brake horse power and over with rotary speed of 700 revolutions per minute or over, specially designed for submarines A

Electric motors over 1,000 brake horse power, quick reversing type, liquid cooled and totally enclosed, specially designed for submarines .. .. . A

Gunmountings and component parts thereof .. .. . A

Marine boilers having either of the following characteristics:—

(a) a heat release rate (at maximum rating) equal to or in excess of 190,000 British Thermal Units per hour per cubic foot of furnace volume .. .. . A

or

(b) a ratio of steam generated in pounds per hour (at maximum rating) to the dry weight of the boiler in pounds equal to or in excess of 0.83 .. .. . A

Nets, anti-submarine and anti-torpedo .. .. . A

Non-magnetic diesel engines capable of developing 50 brake horse power and over, specially designed for military purposes and having

(a) non-magnetic parts other than crank-case, block, head, pistons, covers, end plates, valve facings, gaskets, and fuel, lubrication and other supply lines .. .. . A

or

(b) a non-magnetic content exceeding 75 per cent. of their total weight .. .. . A

Periscopes, submarine .. .. . A

Torpedo aiming, control or loading apparatus, torpedo tubes and other apparatus for discharging torpedoes .. .. . A

## Noxious gases, the following:—

Bromoacetone .. .. .	A
Bromobenzyl cyanide .. .. .	A
Bromo (ethyl methyl ketone) .. .. .	A
<i>o</i> Chlorobenzylidenemalononitrile ( <i>o</i> Chlorobenzalmalononitrile) .. .. .	A
<i>mono</i> Chloromethyl chloroformate .. .. .	A
2-Chlorotriethylamine .. .. .	A
Dibromodimethyl ether .. .. .	A
Dichlorodimethyl ether .. .. .	A
2:2'-Dichlorotriethylamine .. .. .	A
Diphenylaminechloroarsine .. .. .	A
Diphenylchloroarsine .. .. .	A
Diphenylcyanoarsine .. .. .	A
Ethyl bromoacetate .. .. .	A
Ethyl NN-dimethylphosphoramidocyanidate .. .. .	A
Ethyl iodoacetate .. .. .	A
Ethyldibromoarsine .. .. .	A
Ethyldichloroarsine .. .. .	A
Lewisite (chlorovinylchloroarsine and dichlorodivinyldichloroarsine) .. .. .	A
Methyldichloroarsine .. .. .	A
Mustard gas (dichlorodiethyl sulphide) .. .. .	A

Phenylcarbylamine chloride (phenylaminocarbonyl chloride) .. ..	A
Phenylacetyl chloride ( <i>w</i> -Chloroacetophenone) .. ..	A
Phenyldibromoarsine .. ..	A
Phenyldichloroarsine .. ..	A
Pinacolyl methylphosphonofluoridate .. ..	A
<i>iso</i> Propyl methylphosphonofluoridate .. ..	A
2:2':2'' Trichlorotriethylamine .. ..	A
Parachutes .. ..	A
Photographic instruments and appliances, the following:—	
Cameras of the kinds specially designed for aerial survey or reconnaissance .. ..	A
Gun cameras, aircraft .. ..	A
Machines of the kinds specially designed for the continuous processing of photographic film or paper of a width of 50 millimetres or more .. ..	A
Refuelling apparatus and appliances, aircraft, the following:—	
(1) Aircraft pressure refuellers and aircraft refuellers, open circuit, having a pumping capacity of over 100 Imperial gallons per minute .. ..	A
(2) Pressure refuelling hose-end couplings or units and pressure control or flow control valves of the kind specially designed for aircraft pressure refuelling .. ..	A
(3) Ring mains dispensers, aircraft servicers or other appliances incorporating any of the articles mentioned in head (2) of this entry .. ..	A
Refuelling apparatus and appliances for missiles, guided or unguided ..	A
Rocket assisted take off apparatus and component parts thereof .. ..	A
Rocket motors and component parts thereof .. ..	A
Searchlight control units .. ..	A
Searchlights, power controlled, of which the reflectors have a diameter of 50 centimetres or more .. ..	A
Silencers and telescopic sights for firearms .. ..	A
Specialised machinery, equipment and gear specially designed for the examination, manufacture, testing and checking of the arms, ammunition, appliances and machines referred to in this Group, including but not limited to the following:	
Armour plate drilling machines, other than radial drilling machines ..	A
Armour plate planing machines .. ..	A
Armour plate quenching presses .. ..	A
Artillery casting machines .. ..	A
Bomb copy boring lathes .. ..	A
Bomb nose and tail boring machines .. ..	A
Bomb nose and tail forging machines .. ..	A
Bomb spinning lathes .. ..	A
Bullet assembling (multipunch) machines .. ..	A
Bullet canneluring machines .. ..	A
Bullet core filling machines .. ..	A
Bullet cutting and cupping machines .. ..	A
Bullet drawing machines .. ..	A
Bullet gauging machines .. ..	A
Bullet lead forming machines .. ..	A
Bullet pointing, forming and sizing machines .. ..	A
Bullet trimming machines .. ..	A
Bullet weighing machines .. ..	A
Cartridge automatic loading machines .. ..	A
Cartridge cap cutting and cupping machines .. ..	A
Cartridge cap varnishing machines .. ..	A

Cartridge case presses .. .. .	A
Cartridge case flash-hole drilling machines .. .. .	A
Cartridge case flash-hole piercing machines .. .. .	A
Cartridge case head turning lathes .. .. .	A
Cartridge case mouth boring lathes .. .. .	A
Cartridge cordite reeling machines .. .. .	A
Cartridge cup priming and pressing machines .. .. .	A
Cartridge finishing and assembly machines .. .. .	A
Cartridge gauging and weighing machines .. .. .	A
Cartridge neck varnishing machines .. .. .	A
Cartridge sizing or rectifying machines .. .. .	A
Cartridge wadding machines .. .. .	A
Centrifugal casting machines capable of casting tubes 6 feet or more in length, with a wall thickness of 2 inches and over .. .. .	A
Gun barrel rifling and broaching machines .. .. .	A
Gun barrel rifling machines .. .. .	A
Gun barrel trepanning machines .. .. .	A
Gun boring and turning machines .. .. .	A
Gun honing machines of 6 foot stroke or more .. .. .	A
Gun jump screw lathes .. .. .	A
Gun rifling machines .. .. .	A
Gun straightening presses .. .. .	A
Induction hardening machines for tank turret rings and sprockets .. .. .	A
Jigs and fixtures and other metal working implements or accessories of the kinds specially designed for use in the manufacture of ammunition, firearms, ordnance and other stores and appliances for land, sea or aerial warfare .. .. .	A
Shell and shell case extrusion and draw presses .. .. .	A
Shell banding presses .. .. .	A
Shell cavity boring lathes .. .. .	A
Shell copper band turning lathes .. .. .	A
Shell forging presses .. .. .	A
Shell groove, wave and undercutting lathes .. .. .	A
Shell heading or nosing presses .. .. .	A
Shell lathes .. .. .	A
Shell loading or filling machines .. .. .	A
Shell making rough turning lathes of the "inverted bed" type .. .. .	A
Shell making special purpose capstan lathes .. .. .	A
Shell shot automatic blasting machines .. .. .	A
Shell tappers .. .. .	A
Small arms chambering machines .. .. .	A
Small arms deep hole drilling machines .. .. .	A
Small arms machines for rifle groove or bore .. .. .	A
Small arms rifling machines .. .. .	A
Small arms spill boring machines .. .. .	A
Tank turret bearing grinding machines .. .. .	A
Supply dropping apparatus, aircraft .. .. .	A
Tanks, self-propelled guns and vehicles, the following:—	
Tanks and self-propelled guns .. .. .	A
Military type armed or armoured vehicles and vehicles fitted with mountings for arms .. .. .	A
Armoured railway trains .. .. .	A
Military half tracks .. .. .	A
Military type recovery vehicles .. .. .	A
Gun carriers and tractors specially designed for towing artillery .. .. .	A
Trailers specially designed to carry ammunition .. .. .	A
Amphibious and deep water fording military vehicles .. .. .	A
Military mobile repair shops specially designed to service military equipment .. .. .	A
Component parts of any of the foregoing .. .. .	A

Training devices specially designed for military purposes, the following:

Flight and navigational synthetic training equipment and component parts thereof .. .. .	A
Other training devices .. .. .	A

Tyres and tubes, the following:—

Bullet-proof and run-flat tyres and double-chambered and self-sealing inner tubes .. .. .	A
Outer covers and inner tubes for aircraft .. .. .	A

## GROUP 2

### *Atomic Energy Materials and Appliances*

Centrifuges, gas, capable of the enrichment or separation of isotopes .. .. .	A
Compressors and blowers (turbo, centrifugal and axial flow types), wholly made of, or lined with, aluminium, nickel or alloy containing 60 per cent. or more of nickel, having a capacity of 60 cubic feet per minute or greater .. .. .	A
Deuterium, heavy water, heavy paraffins and other compounds in which the ratio by number of deuterium atoms to hydrogen atoms exceeds 1 to 5,000; and mixtures and solutions of any of the foregoing .. .. .	A
Electrolytic cells for the production of fluorine, with a production capacity greater than 250 grammes of fluorine per hour .. .. .	A
Equipment specially designed for the separation of isotopes of uranium or lithium or of uranium and lithium .. .. .	A
Fissionable material, the following:—	
Plutonium .. .. .	A
Uranium enriched in the isotope 235 .. .. .	A
The isotope 233 of uranium .. .. .	A
Alloys, compounds and mixtures of any of the foregoing .. .. .	A
Graphite, artificial, having a boron content of one part per million or less and a total thermal neutron absorption cross-section of 5 millibarns or less per atom .. .. .	A
Heat exchangers, designed for use in gaseous diffusion plants, designed to operate at sub-atmospheric pressure, with a leak rate of less than $10^{-4}$ atmospheres per hour under a pressure differential of 1 atmosphere, the following:—	
Types wholly made of aluminium, copper or nickel or alloys containing more than 60 per cent. of nickel, separately or together .. .. .	A
Types incorporating tubing clad with aluminium, copper or nickel or alloys containing more than 60 per cent. of nickel, separately or together and in which the other parts are made wholly of the foregoing metals, separately or together .. .. .	A
Machines (including nuclear reactor fuel chopping machines and counter current solvent extractors), materials and equipment specially designed for use in the processing of irradiated nuclear materials in order to isolate or recover fissionable materials, and specially designed parts and accessories therefor .. .. .	A
Mass spectrographs and mass spectrometers, the following:—	
All multi-focus types (including double focus, tandem and cycloidal) .. .. .	A
Single focus types possessing a radius of curvature of 5 inches or more and sub-assemblies, components and parts specially designed therefor .. .. .	A
Neutron generator tubes designed for operation without an external vacuum system, and utilising electrostatic acceleration to induce a tritium-deuterium nuclear reaction .. .. .	A

Nuclear reactors and associated equipment, the following:—

- (1) Nuclear reactors capable of operation so as to maintain a controlled self-sustaining fission chain reaction .. .. . A
  - (2) Components specially designed for use in a nuclear reactor, or in association with such a reactor, the following:—
    - (a) Reactor vessels .. .. . A
    - (b) Core support structures .. .. . A
    - (c) Coolant pumps .. .. . A
    - (d) Fuel element handling equipment .. .. . A
    - (e) Heat exchangers .. .. . A
    - (f) Control rod drive mechanisms .. .. . A
  - (3) Power generating or propulsion equipment specially designed or adapted for use with the nuclear reactors specified in head (1) of this entry .. .. . A
- Particle accelerators capable of imparting energies of 500,000 electron volts or more and rated for a peak beam power of 500 megawatts or more and specialised parts and accessories therefor .. .. . A
- Plant and equipment specially designed for the production or concentration of deuterium oxide .. .. . A
- Plant specially designed for the production of uranium hexafluoride (UF<sub>6</sub>) .. .. . A
- Process control equipment specially designed or modified for monitoring or controlling the processing of irradiated fissionable or fertile materials, or irradiated lithium .. .. . A
- Thorium and its compounds and mixtures containing such substances .. .. . A
- Tritium and compounds containing tritium in which the ratio by number of tritium atoms to hydrogen atoms exceeds 1 to 1,000; and mixtures, preparations and solutions containing one or more of the foregoing .. .. . A
- Uranium and its compounds and mixtures containing such substances .. .. . A
- Valves, with bellows seal, with other than metal-to-metal seating and in which the other parts are made wholly of or lined with aluminium, nickel or alloy containing 60 per cent. or more of nickel, separately or together .. .. . A

### GROUP 3

#### *Electrical, Electronic and Scientific Appliances*

Amplifiers, electronic or magnetic, specially designed for use with resolvers, the following:—

- (1) Isolation types having a variation of gain constant (linearity of gain) of 0·2 per cent. or better .. .. . A
- (2) Summing types having a variation of gain constant (linearity of gain) or an accuracy of summation of 0·2 per cent. or better .. .. . A
- (3) Types employing solid state Hall effect .. .. . A
- (4) Types designed to operate below  $-55^{\circ}$  centigrade or above  $125^{\circ}$  centigrade .. .. . A
- (5) Specially designed components, parts, sub-assemblies and test equipment (including adaptors and couplers) for the equipment specified above .. .. . A

Amplifiers or oscillator devices, the following:—

- (1) Amplifiers designed to operate at frequencies in excess of 500 megacycles per second .. .. . A
- (2) Tuned amplifiers, having a bandwidth which exceeds 10 megacycles per second or 10 per cent. of the mean frequency, whichever is less, except those specially designed for use in community television distribution systems .. .. . A
- (3) Untuned amplifiers, having a bandwidth which exceeds 10 megacycles per second but excluding those having a bandwidth up to 30 megacycles per second provided the power output does not exceed 5 watts .. .. . A

- (4) Direct current amplifiers, amplifying by whatever means, having a noise level (referred to the input circuit) of  $10^{-16}$  watts or less, or a zero-drift in one hour corresponding to a change in input of  $10^{-16}$  watts or less, or both these characteristics .. .. . A
- (5) Parametric amplifiers with a noise figure of merit of 5 decibels or less measured at a temperature of  $17^{\circ}$  centigrade .. .. . A
- (6) Paramagnetic amplifiers .. .. . A
- (7) Other amplifier or oscillator devices which amplify or oscillate by means of a stimulated electro-magnetic radiation .. .. . A
- and specialised parts (including semi-fabricated active components of stimulated emission radiation devices) for the equipment mentioned in heads (5), (6) and (7) of this entry .. .. . A
- In this entry—
- “bandwidth” means the band of frequencies over which the power amplification does not drop to less than one-half of its maximum value; and
- “mean frequency” means the arithmetic mean between the frequencies at which the power amplification is one-half of its maximum value.
- Apparatus designed to jam or otherwise interfere with radio reception and specialised parts of such apparatus .. .. . A
- Apparatus of a kind used for detecting or locating objects under water by magnetic or acoustic or ultrasonic methods other than marine depth-sounders of a kind used solely for measuring the depth of water or the distance of submerged objects, fish or whales vertically below the apparatus, and specialised components of such apparatus.
- Capacitors, tantalum or niobium electrolytic, the following:—
- All types designed to operate continuously at temperatures exceeding  $85^{\circ}$  centigrade.
- Sintered electrolytic capacitors except those having a casing made of epoxy resin or sealed with epoxy resin.
- Electrolytic capacitors constructed with foils.
- Centrifugal testing apparatus possessing any of the following characteristics:—
- driven by a motor or motors having a total rated horse power greater than 400 horse power;
- capable of carrying a load of 250 pounds or more;
- capable of exerting a centrifugal acceleration of 8g or more on a load of 200 pounds or more.
- Communication, detection and tracking equipment of a kind using ultra-violet radiation, infra-red radiation or ultrasonic waves, and specialised parts therefor .. .. . A
- other than—
- (1) equipment of a kind using ultrasonic waves which operates in contact with a controlled material to be inspected; and
- (2) equipment employing cells not specified in the entries relating to photo-electric cells and thermal detecting cells in Group 3 of this Order or flame detectors for industrial furnaces.
- Communication, navigation, direction finding and radar equipment, the following:—
- (1) Airborne communication equipment and specialised parts and components therefor.
- (2) Airborne navigation equipment and direction finding equipment, the following:—
- (a) Altimeters—
- (i) pulse modulated,

- (ii) frequency modulated having an electrical output accuracy better than  $\pm 3$  feet over the whole range between 0 and 100 feet or  $\pm 3$  per cent. above 100 feet.
  - (iii) frequency modulated using other than conventional techniques.
- (b) Equipment designed to make use of the Doppler frequency phenomena.
- (c) Equipment utilising—
- (i) the constant velocity, or
  - (ii) the rectilinear propagation characteristics of electromagnetic waves having frequency less than  $4 \times 10^{14}$  cycles per second (0.75 microns).
- (d) Equipment, direction finding, operating at frequencies greater than 5 megacycles per second, other than equipment designed for search and rescue purposes provided that the receiver operates on a crystal controlled fixed frequency of 121.5 megacycles per second and that the determination of the direction finding bearing is not independent of the heading of the aircraft and provided that the direction finding antenna array is designed for operation at a fixed frequency of 121.5 megacycles per second.
- (e) Equipment pressurised throughout.
- (f) Equipment rated for continuous operation over a range of ambient temperatures extending from below  $-55^{\circ}$  centigrade to above  $55^{\circ}$  centigrade.
- (3) Airborne radar equipment.
- (4) Ground and marine radar equipment, the following:—
- (a) Radar equipment, other than commercial equipment designed for pulse operation at the following frequency ranges measured in megacycles per second:—
    - (i) from 1215 to 1400.
    - (ii) from 2300 to 2550.
    - (iii) from 2700 to 3700.
    - (iv) from 5250 to 5350.
    - (v) from 5460 to 5925.
    - (vi) from 8500 to 10,500.
  - (b) Radar equipment having a peak output power from the transmitter greater than 160 kilowatts.
  - (c) Radar equipment having an 80 per cent. or better cumulative probability of detection of a 20 square metre target at a free space range of 50 nautical miles.
  - (d) Radar equipment utilising other than pulse modulation with a constant pulse repetition frequency or staggered pulse repetition frequency or both, in which the carrier frequency of the transmitted signal is not changed deliberately between groups of pulses, from pulse to pulse, or within a single pulse.
  - (e) Radar equipment utilising a Doppler technique for any purpose, other than moving target indicator systems using a conventional double or triple pulse delay line cancellation technique.
  - (f) Radar equipment utilising other than conventional signal processing techniques.

In this entry cumulative probability of detection must be determined according to the following parameters:—

Radial closing velocity of the target 2,000 feet per second.

Probability of false alarm  $10^{-8}$ .

Operating factor 3dB.

Fluctuation of the target in accordance with Rayleigh distribution.

- (5) Ground and marine equipment for use with airborne navigation equipment utilising—
  - (a) the constant velocity, or
  - (b) the rectilinear propagation characteristics of electromagnetic waves having frequency less than  $4 \times 10^{14}$  cycles per second (0.75 microns).
- (6) Ground and marine direction finding equipment operating at frequencies greater than 12 megacycles per second.
- (7) Specialised parts, specialised accessories, specialised testing or calibrating equipment and training or simulating equipment for the apparatus mentioned in heads (2), (3), (4), (5) or (6) of this entry.

Communication transmission equipment, single and multi-channel, including line or radio terminal, modem, multiplex, and intermediate amplifier or repeater equipment, the following:—

- (1) Equipment employing analogue techniques, including frequency division multiplex, designed to deliver, carry or receive frequencies higher than 150 kilocycles per second into, or in, a communications system; except carrier communications terminals specially designed for power lines and operating at frequencies below 1,500 kilocycles per second.
- (2) Equipment employing digital transmission with analogue input and output, including pulse code modulation, designed for use on communications circuits.
- (3) Specialised test equipment for the equipment specified in (2) above.
- (4) Components, accessories and sub-assemblies, specially designed for the equipment specified in (1), (2) and (3) above.

Compasses and gyroscopic apparatus, the following:—

- (1) Accelerometers with a threshold of 0.005g or less, or a linearity of less than 0.25 per cent. of output over the operating range, or both, which are designed for use in inertial navigation systems or in guidance systems .. .. . A
- (2) Automatic pilots, except marine types for surface vessels.
- (3) Gyro compasses, possessing one or more of the following characteristics:—
  - (a) automatic correction for the effects on compass accuracy of changes in ship's speed, acceleration or latitude;
  - (b) provision for accepting ship's data as an electrical input;
  - (c) provision for setting in corrections for current set and drift;
  - (d) utilisation of accelerometer, rate gyro, rate integrating gyros or electrolytic levels as sensing devices;
  - (e) provision for determining and electrically transmitting ship's level reference data (roll, pitch) in addition to own ship's course data.
- (4) Gyro-astro compasses and other devices which derive position or orientation by means of automatically tracking celestial bodies.
- (5) Gyro-stabilisers other than the kinds used for stabilising an entire surface vessel.



- (6) Gyros with a rated free directional drift rate of less than  $0.5^\circ$  (1 Sigma or root mean square) per hour in a 1g environment.
- (7) Gyro compasses which incorporate gyros specified in (6) above or which, when operated in a gyro compass mode, have a compass error, before compensation, due to gyroscopic drift of less than  $1/30$  of a radian at  $0^\circ$  latitude.
- (8) Inertial equipment using accelerometers specified in (1) above or gyros specified in (6) above or both, and systems incorporating such equipment.
- (9) Specially designed parts and components, testing, calibration and alignment equipment for the equipment specified in sub-heads (1) to (8) inclusive.

Components and parts thereof (including but not limited to capacitors, transformers, chokes and relays) of a kind used as inductive and capacitive elements in electronic circuits, capable of reliable performance in relation to their electrical and mechanical characteristics and maintaining their design service life-time while operating—

- (a) over the whole range of ambient temperatures from below  $-45^\circ$  centigrade to above  $100^\circ$  centigrade; or
- (b) at ambient temperatures of  $200^\circ$  centigrade or higher.

Computers, electronic, the following:—

- (1) Electronic computers, designed or modified for use in aircraft (piloted or pilotless), missiles (guided or unguided) or space vehicles (guided or unguided) and rated for continuous operation at temperatures from below  $-45^\circ$  centigrade to above  $55^\circ$  centigrade, and equipment or systems incorporating such computers .. .. . A
- (2) Specialised components, parts, sub-assemblies and accessories for equipment mentioned in head (1) .. .. . A
- (3) Other electronic computers, and specialised components, parts, sub-assemblies and accessories therefor.

Converters, analogue-to-digital and digital-to-analogue, the following:—

- (1) Electrical-input types possessing:—
  - (a) a peak conversion rate capability in excess of 50,000 complete conversions per second; or .. .. . A
  - (b) an accuracy in excess of 1 part in more than 10,000 of full scale; or .. .. . A
  - (c) a figure of merit of  $10^7$  or more (derived from the number of complete conversions per second divided by the accuracy) .. A
- (2) Mechanical input types, including shaft position encoders and linear displacement encoders, but excluding complex servo-follower systems, the following:—
  - (a) rotary types having an accuracy or maximum incremental accuracy better than  $\pm 1$  part in 10,000 of full scale; .. .. . A
  - (b) linear displacement types having an accuracy better than  $\pm 5$  microns .. .. . A
- (3) Types employing solid state Hall effect .. .. . A
- (4) Types designed to operate below  $-55^\circ$  centigrade or above  $125^\circ$  centigrade .. .. . A
- (5) Specially designed components, parts, sub-assemblies and test equipment (including adaptors and couplers) for the equipment specified above .. .. . A

Cypher machines, cryptographic and coding devices and equipment, and associated equipment, usable on any transmission system that is designed to ensure the secrecy of communications and thus prevent clear reception by anyone other than the intended receiver; including specialised assemblies, sub-assemblies and components therefor, and equipment containing such assemblies, sub-assemblies and components . . . . . A

other than—

simple coding devices or equipment only ensuring the privacy of communications.

Data communication equipment employing digital transmission with digital input and output, including telegraphic and data transmission, the following:—

- (1) Equipment designed for operation at a data signalling rate in bits per second, excluding servicing and administrative channels, numerically exceeding either 1,200 bits per second or 65 per cent. of the channel or sub-channel bandwidth in cycles per second.
- (2) Equipment employing automatic error detection and correction systems in which retransmission is not required for correction and the transmission speed exceeds 300 bauds.
- (3) Components, accessories and sub-assemblies, specially designed for equipment specified in (1) and (2) above.

In this entry—

“Data signalling rate” takes into account that, for non-binary modulation systems, “bauds” and “bits per second” are not equal since bits for coding, checking and synchronisation should be included with the “bits per second”.

“Bandwidth”, for systems designed to operate in one voice channel, is 3,100 cycles per second and for voice frequency telegraph systems designed to International Telegraph and Telephone Consultative Committee (CCITT) and International Radio Consultative Committee (CCIR) standards “bandwidth” is the number of channels times the channel spacing.

Electrical optical devices designed to monitor relative rotation of remote surfaces; and specially designed components, parts, sub-assemblies and test equipment (including adaptors and couplers) for such equipment . . . A

Electro-chemical, semi-conductor and radio-active devices for the direct conversion of chemical, solar or nuclear energy to electrical energy, the following:—

- (1) Electro-chemical devices of the following types:—
  - (a) Fuel cells, including regenerative cells, which generate electric power from consumable components all of which are supplied from outside the cell.
  - (b) Primary cells having any of the following characteristics:—
    - (i) possessing a means of activation and having an open circuit storage life in the unactivated condition, at a temperature of 21° centigrade, of ten years or more;
    - (ii) capable of operating at temperatures from below –25° centigrade to above 55° centigrade, including cells and cell assemblies, other than dry cells, possessing self-contained heaters.
- (2) Photo-voltaic cells of the following types:—
  - (a) Types with a power output of 8 milliwatts or more per square centimetre under 100 milliwatts per square centimetre tungsten (2,800° Kelvin) illumination.

- (b) Gallium arsenide type cells, other than those having a power output of less than 4 milliwatts per square centimetre under 100 milliwatts per square centimetre tungsten (2,800° Kelvin) illumination.
- (3) Power sources, based on radioactive materials systems, excluding the following:—
- (a) those having an output power of less than 0.5 watt and a total weight of more than 200 pounds; and
- (b) those specially designed and developed for medical use within the human body.

Electromagnetic waveguides and components therefor, the following:—

- (1) Rigid and flexible waveguides and components designed for use at frequencies in excess of 12,500 megacycles per second.
- (2) Waveguides having a bandwidth ratio greater than 1.5:1.
- (3) Pressurised waveguides and specialised components therefor.
- (4) Electromagnetic waveguide components, the following:—
- (a) Directional couplers having a bandwidth ratio greater than 1.5:1 and a directivity over the band of 15 decibels or more.
- (b) Rotary joints capable of transmitting more than one isolated channel or having a bandwidth greater than 5 per cent. of the centre mean frequency.
- (c) Magnetic, including gyro-magnetic, waveguide components.
- (5) TEM mode devices using magnetic, including gyro-magnetic, properties.
- (6) TR and anti-TR tubes and components therefor, except those designed for use in waveguides operating at a peak power not exceeding 160 kilowatts and in the following frequency ranges measured in megacycles per second:—
- (a) from 1,215 to 1,400
- (b) from 2,300 to 2,550
- (c) from 2,700 to 3,700
- (d) from 5,250 to 5,350
- (e) from 5,460 to 5,925
- (f) from 8,500 to 10,500

Electronic cathode-ray oscilloscopes and specialised parts and accessories therefor, the following:—

- (1) Oscilloscopes of the kinds having any of the following characteristics:—
- (a) an amplifier bandwidth greater than 30 megacycles per second
- (b) incorporating, or designed to use, cathode-ray memory tubes
- (c) incorporating, or designed to use, cathode-ray tubes with travelling wave or distributed deflection structure; or incorporating other techniques to minimise mismatch of fast phenomena signals to the deflection structure ... .. A
- (d) ruggedised to meet a military specification ... .. A
- (e) being rated for operation over an ambient temperature range of from below -25° centigrade to above 55° centigrade ... .. A
- (f) a rise time of less than 12 nanoseconds
- (2) Oscilloscope plug-in units and external amplifiers and pre-amplifiers which have a bandwidth greater than that specified in (1)(a) above.
- (3) Electronic devices (sampling devices) for stroboscopic analysis of a signal, whether sub-assemblies or separate units, designed to be used in conjunction with cathode-ray oscilloscopes to permit the analysis of recurring

phenomena, which increase the capabilities of a cathode-ray oscilloscope to permit measurements within the limits of the apparatus mentioned under item (1)(a) of this entry.

In this entry "bandwidth" means the band of frequencies over which the deflection on the cathode-ray tube does not fall below 70·7 per cent. of that at the maximum point, measured with a constant input voltage to the amplifier.

Electronic cathode-ray tubes, vacuum tubes or valves, (other than tubes included in the entry relating to X-ray systems, flash discharge types) the following:—

- (1) Cathode-ray tubes—
  - (a) with a resolving power of 500 lines or more per inch, using the shrinking raster method of measurement;
  - (b) with writing speeds of more than 3,000 kilometres per second;
  - (c) alpha-numeric and similar display tubes in which a symbol-mask within the tube can be scanned to display any of the symbols or any part of the phosphor.
- (2) Image intensifier tubes, image converter tubes and specialised components; electronic storage tubes including memory transformers of radar pictures and ruggedised vidicon-type tubes, but excluding other television camera tubes and X-ray intensifier tubes.
- (3) Hydrogen thyratron tubes, the following:—
  - (a) rated for a peak pulse power of 2 megawatts or more;
  - (b) of metal-ceramic construction.
- (4) Valves, the following:—
  - (a) Valves rated for CW operation above 1,000 megacycles per second at the maximum rated anode dissipation.
  - (b) Valves rated for pulse operation above 300 megacycles per second at the maximum rated anode dissipation.
  - (c) Valves rated for CW operation over the frequency range 300 to 1,000 megacycles per second and for which (under any conditions of cooling) the product of the maximum rated anode dissipation (expressed in watts) and the square of the maximum frequency (expressed in megacycles per second) at the maximum rated anode dissipation, is greater than  $10^8$ ; or where applied to external anode tubes rated only without a radiator, and rated only for free air circulation, the product is greater than  $5 \times 10^6$ .
  - (d) Valves constructed with ceramic envelopes and rated for operation above 300 megacycles per second.
  - (e) Klystrons, travelling wave tubes and magnetrons other than fixed frequency pulsed magnetrons designed to operate at frequencies in the range of 9·3 to 9·5 kilomegacycles per second with a maximum peak output not greater than 25 kilowatts.
  - (f) Valves, not specified in (e) above, of the kind in which the velocity of the electrons is utilised as one of the functional parameters.
  - (g) Valves indirectly heated, of a kind that can be passed through a circular hole 7·2 millimetres in diameter,
  - (h) Valves designed to withstand acceleration of short duration (shock) greater than 1,000g ... .. A
  - (i) Valves designed for operation in ambient temperatures exceeding 200° centigrade,
  - (j) Specialised parts for the valves specified above.

- (5) Cold cathode tubes, whether gas-filled or not, operating in a manner similar to a spark gap, containing three or more electrodes and having all of the following characteristics:—
- (a) rated for an anode peak voltage of 2,500 volts or more;
  - (b) rated for peak currents of 100 amperes or more;
  - (c) an anode delay time of 10 microseconds or less; and
  - (d) an envelope diameter of less than 1 inch (25·4 millimetres).
- (6) Vacuum tubes specially designed for use as pulse modulators for radar or for similar applications, having a peak anode voltage rating of 100 kilovolts or more or rated for a peak pulse power of 2 megawatts or more, and specialised parts therefor.

Electronic components, the following:—

- (1) Assemblies and sub-assemblies constituting one or more functional circuits with a component density greater than 75 parts per cubic inch.
- (2) Modular insulating panels (including plates and wafers) mounting single or multiple electronic elements, and specialised parts therefor, other than panels, the following:—
- (a) constructed of paper base phenolics, glass cloth melamine, glass cloth epoxy resin, or
  - (b) constructed of any other insulating materials with an operating temperature not exceeding 180° centigrade,
- which do not contain any components specified in Group 3 of this Order or which do not have any of the characteristics described in sub-head (1) above.
- (3) Integrated circuits (which are assemblies or sub-assemblies containing one or more functional circuits in which are both components and inter-connections formed by the diffusion or deposition of materials into or on a common substrate).

Electronic measuring, calibrating, counting, testing and time interval measuring equipment (whether or not incorporating frequency standards), the following:—

- (1) Equipment consisting of, or containing, frequency measuring equipment or frequency standards designed for—
- (a) other than ground laboratory use, with an accuracy better than 1 part in 10<sup>7</sup>; or ... .. A
  - (b) ground laboratory use with a stability over 24 hours of 1 part in 10<sup>9</sup> or better. ... .. A
- (2) Equipment designed for use at frequencies—
- (a) exceeding 1,000 megacycles per second but not more than 2,500 megacycles per second,
  - (b) exceeding 2,500 megacycles per second... .. A
- other than radio spectrum analysers specified elsewhere in this Group.
- (3) Equipment designed to provide a multiplicity of alternative output frequencies controlled by a lesser number of piezo-electric crystals or an internal or external frequency standard other than equipment in which the output frequency is selected only by manual operation either on the equipment or on a remote control unit, and in which—
- (a) the output frequency is a multiple of a common control frequency, or A
  - (b) the output frequency is a multiple of a common frequency which is not less than 1:1000 part of the oscillator frequency and is in steps of 1 kilocycle per second or greater. ... .. A
- (4) Counting equipment capable of resolving at normal input levels successive input signals with less than 0·1 microsecond time difference ... A

- (5) Time interval measuring equipment containing the counting equipment specified in (4) above ... .. A
- (6) Testing equipment rated to maintain a specified operating data over a range of ambient temperatures from below  $-25^{\circ}$  centigrade to above  $55^{\circ}$  centigrade.

Fibre optic plates or bundles, non-flexible fused, having a fibre pitch (centre to centre spacing) of less than 15 microns; a light-absorbing medium surrounding each fibre or interstitially placed between fibres; and a diameter greater than 13 millimetres.

Gravity meters (gravimeters) designed or modified for airborne or marine use and specialised parts therefor.

Induction potentiometers (including function generators and linear synchros), linear and non-linear, possessing any of the following characteristics:—

- (1) a rated conformity of 0.5 per cent or less, or of 18 minutes or less ... A
- (2) types employing solid state Hall effect ... .. A
- (3) types designed for gimbal mounting... .. A
- (4) types designed to operate below  $-55^{\circ}$  centigrade or above  $125^{\circ}$  centigrade ... .. A
- (5) specially designed components, parts, sub-assemblies and test equipment (including adaptors and couplers) for the equipment specified above. ... A

Induction rate (tachometer) generators, synchronous and asynchronous, the following:—

- (1) Types employing solid state Hall effect; ... .. A
- (2) Types with a housing diameter of 2 inches and smaller and a length (without shaft ends) of 4 inches and smaller having one or both of the following characteristics:—
- (a) with a rated linearity of 0.5 per cent or less ... .. A
- (b) being temperature compensated or temperature corrected ... .. A
- (3) Types with a diameter to length ratio greater than two to one having one or both of the following characteristics:—
- (a) with a rated linearity of 0.5 per cent or less ... .. A
- (b) being temperature compensated or temperature corrected ... .. A
- (4) Types designed to operate below  $-55^{\circ}$  centigrade or above  $125^{\circ}$  centigrade ... .. A
- (5) Specially designed components, parts, sub-assemblies and test equipment (including adaptors and couplers) for the equipment specified above ... A

Magnetometers and specialised parts therefor, the following:—

- (1) Types with a sensitivity below  $1.0 \text{ gamma}$  ( $1 \times 10^{-5}$  oersteds)
- (2) Types with a response time of less than 2 microseconds.
- (3) Fluxgate types.
- (4) Paramagnetic types.

Materials specially designed and manufactured for use as absorbers of electromagnetic waves having frequencies greater than  $2 \times 10^8$  cycles per second, and less than  $3 \times 10^{12}$  cycles per second.

Materials composed of crystals having spinel, hexagonal or garnet crystal structures, and thin film devices, the following:—

- (1) Monocrystals of ferrites and garnets (synthetic only).

- (2) Single aperture forms possessing any of the following characteristics:—
  - (a) switching speed of 0.5 microsecond or faster at the minimum field strength required for switching at 40° centigrade;
  - (b) a maximum dimension less than 45 mils (1.14 millimetres).
- (3) Multi-aperture forms with fewer than 10 apertures possessing any of the following characteristics:—
  - (a) switching speed of 1 microsecond or faster at the minimum field strength required for switching at 40° centigrade;
  - (b) a maximum dimension less than 100 mils (2.54 millimetres).
- (4) Multi-aperture forms having 10 or more apertures.
- (5) Thin film memory storage or switching devices.
- (6) Electrical filters in which the coupling element makes use of the electro-mechanical properties of ferrites.
- (7) Materials suitable for application in electromagnetic devices making use of the gyro-magnetic resonance phenomenon.
- (8) Assemblies of and devices incorporating any of the foregoing.

Microscopes, ion, having a resolving power better than 10 Ångström units.

Photo-electric cells (other than germanium photo cells with a peak response less than 17,500 Ångström units), the following:—

- (1) Photo-electric cells, photo-conductive cells (including photo-transistors and similar cells) with a peak sensitivity at a wavelength longer than 12,000 Ångström units or shorter than 3,000 Ångström units ... .. A
- (2) Photo-transistors (photo-conductive cells including photo-diodes) with a response time constant of one millisecond or less measured at the operating temperature of the cell for which the time constant reaches a minimum ... .. A

Photographic apparatus and film, the following:—

- (1) High speed recording cameras, the following:—
  - (a) Cameras in which the film is continuously advanced throughout the recording period, and which are capable of recording at rates exceeding 3,000 frames per second for the full framing height of 35 millimetres wide photographic film, or proportionally higher rates for lesser frame heights or proportionally lower rates for greater frame heights, that is where the product of the number of frames per second and the frame height in millimetres exceeds 105,000 ... .. A
  - (b) Cameras in which the film moves intermittently during the recording period, being automatically locked in place for each frame and which are capable of recording at the following rates:—
    - (i) more than 250 frames per second for 16 millimetre film at full frame height; ... .. A
    - (ii) more than 130 frames per second for 35 millimetre film at full frame height; or ... .. A
    - (iii) more than 50 frames per second for 70 millimetre film at full frame height. ... .. A
- (2) High speed cameras in which the film does not move, and which are capable of recording at rates exceeding 250,000 frames per second for the full framing height of standard 35 millimetre wide photographic film, or proportionally higher rates for lesser frame heights, or proportionally

- lower rates for greater frame heights, that is where the product of the number of frames per second and the frame height in millimetres exceeds 8,750,000 ... .. A
- (3) Cameras incorporating image converters and specially designed controls, parts and accessories therefor. ... .. A
- (4) Photographic systems specially designed for use in space vehicles ... A
- (5) Streak cameras having writing speeds of 8 millimetres per microsecond and above, capable of recording events which are not initiated by the camera mechanism ... .. A
- (6) Cameras having shutter speeds of less than 1 microsecond per operation, and specialised parts and accessories therefor ... .. A
- (7) High speed film, the following:—
- (a) having an intensity dynamic ratio of 1,000,000 to 1 or more; or ... A
- (b) having a speed of ASA 10,000 (or its equivalent) or better ... .. A

In this entry "streak cameras" means cameras designed to record the intensity of a light source as a function of time by moving the image of the source along the film in a single direction.

Photomultiplier tubes, the following:—

- (1) for which the maximum sensitivity occurs at wavelengths longer than 7,500 Ångström units or shorter than 3,000 Ångström units; or
- (2) having an anode pulse rise time of less than 2 nanoseconds.

Piezo-electric quartz crystals, blanks, plates, bars, rods and toroids, worked, semi-fabricated or mounted, including assemblies thereof.

Potentiometers, other than potentiometers using only switched elements, the following:—

- (1) Linear potentiometers having a constant resolution and a rated linearity of 0.1 per cent or less ... .. A
- (2) Non-linear potentiometers having a variable resolution and a rated conformity of:—
- (a) 1 per cent or less when the resolution is inferior to that obtained with a linear potentiometer of the same type and of the same track length ... .. A
- or
- (b) 0.5 per cent or less when the resolution is better than or equal to that obtained with a linear potentiometer of the same type and of the same track length ... .. A
- (3) Types designed for gimbal mounting ... .. A
- (4) Types designed to operate below  $-55^{\circ}$  centigrade or above  $125^{\circ}$  centigrade ... .. A
- (5) Special instruments (including Vernistats) rated to have any of the characteristics specified in (1), (2) or (4) above ... .. A
- (6) Specially designed components, parts, sub-assemblies and test equipment (including adaptors and couplers) for the equipment specified above ... A

Pulse modulators of a kind used for providing electric impulses of peak power exceeding 200 kilowatts or of a duration of less than 0.1 microsecond, or with a duty cycle in excess of 0.002, and pulse transformer and pulse-forming equipment and delay lines being parts specially designed for such pulse modulators.

Radio receivers, panoramic, being receivers which search automatically a part of the radio-frequency spectrum and indicate the signals received, and specialised parts therefor, except ancillary equipment for commercial receivers with which the frequency spectrum searched does not exceed  $\pm 20$  per cent. of the intermediate frequency of the receiver or  $\pm 2$  megacycles per second.



Radio relay communications equipment, the following:—

- (1) Equipment employing tropospheric, ionospheric or meteoric scatter phenomena, and specialised test equipment therefor.
- (2) Radio relay equipment designed for use at frequencies exceeding 300 megacycles per second having any of the following characteristics:—
  - (a) designed for use at frequencies exceeding 470 megacycles per second; or
  - (b) a power output exceeding 10 watts; or
  - (c) a signal bandwidth at the input to the modulator exceeding 150 kilocycles per second; or
  - (d) for other than fixed use.
- (3) Components, accessories and sub-assemblies, specially designed for (1) and (2) above.

Radio spectrum analysers (being apparatus capable of indicating the single-frequency components of multi-frequency oscillations), the following:—

- (1) designed to operate at frequencies over 1,000 megacycles per second;
- (2) designed to operate at frequencies over 300 megacycles per second and using interchangeable heads (radio-electric frequency tuning systems) and incorporating integral sweep facilities;
- (3) having a display bandwidth in excess of 12 megacycles per second;
- (4) specialised components, parts and accessories for (1), (2) and (3).

Radio transmitters and components, the following:—

- (1) Transmitters or transmitter amplifiers designed to operate at output frequencies greater than 235 megacycles per second, other than—
  - (a) television broadcasting transmitters and amplifiers therefor operating between 470 megacycles per second and 960 megacycles per second;
  - (b) frequency-modulated and amplitude-modulated ground communications equipment, required for use in the land mobile service and operating in the 420 to 470 megacycles per second band, with a power output of not more than 25 watts for mobile units and 100 watts for fixed units;
  - (c) amplitude-modulated radio-telephone equipment used for search and rescue work operating on a frequency of 243 megacycles per second with a carrier power not exceeding 100 milliwatts.
- (2) Transmitters or transmitter amplifiers designed to provide any of the following features:—
  - (a) any system of pulse modulation other than amplitude-, frequency- or phase-modulated television or telegraphic transmitters;
  - (b) rated for operation over a range of ambient temperatures extending from below  $-40^{\circ}$  centigrade to above  $55^{\circ}$  centigrade;
  - (c) facilities providing a multiplicity of alternative output frequencies controlled by a lesser number of piezo-electric crystals, other than equipment in which the output frequency is selected only by manual operation either on the equipment or on a remote control unit, and in which—
    - (i) the output frequency is a multiple of a common control frequency, or
    - (ii) the output frequency is a multiple of a common frequency, which is not less than 1:1,000 part of the oscillator frequency and is in steps of 1 kilocycle per second or greater.

- (3) Components and sub-assemblies, including but not limited to intermediate frequency and power amplifiers and their parts, modulators and modulation amplifiers, aerial filters, aerials and their connecting devices, control equipment placed in racks and maintenance equipment specially designed for use in the transmitters specified in heads (1) and (2) above.

Recording or reproducing equipment, the following:—

- (1) Equipment using magnetic techniques (other than equipment specially designed for voice or music).
- (2) Equipment using electron beams operating in a vacuum or using laser produced light beams or both, that produce patterns or images directly on the recording surface.
- (3) Specialised equipment for image development.
- (4) Graphic instruments capable of continuous direct recording of sinusoidal waves at frequencies exceeding 20 kilocycles per second.
- (5) Specialised recording media (tapes, drums, discs and matrices) other than magnetic cards, checks and similar discrete non-rigid magnetic media (except tape) for use with the equipment specified in (1)(2)(3) and (4) above.
- (6) Specialised components and parts for the equipment specified in (1)(2)(3) (4) and (5) above.

Semi-conductor diodes and thyristors (other than photo-diodes, which are specified in the entry relating to photo-electric cells in this group) the following:—

- (1) Semi-conductor diodes in which the bulk material is other than silicon, germanium, selenium or copper oxide ... .. A
- (2) Semi-conductor diodes in which the bulk material is silicon or germanium, (including mixer, detector, frequency changing and variable capacitance diodes, and diodes used for direct conversion or direct current to radio frequency power), designed or rated for use at input or output frequencies greater than 300 megacycles per second; except the following:—
  - (a) Point contact diodes designed for use at input frequencies not exceeding 1 gigacycle per second.
  - (b) Voltage-variable capacitance diodes designed for tuning and automatic frequency control in entertainment type television and radio receivers having all of the following characteristics:—
    - (i) a rated power dissipation of less than 0.5 watts at 25° centigrade;
    - (ii) a series inductance higher than 3 nanohenries; and
    - (iii) a typical figure of merit Q of less than 800 measured at a reverse voltage of 4 volts and a frequency of 50 megacycles per second.
- (3) Semi-conductor diodes, in which the bulk material is silicon or germanium, having a rated maximum reverse recovery time of less than 30 nanoseconds or rated for a stored charge of 100 picocoulombs or less; including diodes constructed with a rectifying deposited metal semi-conductor junction or barrier, such as hot-carrier or Schottky-barrier diodes.
- (4) Tunnel diodes ... .. A
- (5) Thyristors having a rated turn-off time of less than 10 microseconds.

In this entry when “average reverse recovery time” is quoted instead of “maximum reverse recovery time”, the maximum may be regarded as 2 times the average.

Semi-conductor Hall field probes, specially designed components, parts, sub-assemblies and test equipment (including adaptors and couplers) therefor, the following:—

- (1) Types made of indium-arsenide-phosphide.
- (2) Types coated with ceramic or ferritic materials (including tangential field probes, multipliers, modulators and recorder probes).
- (3) Types with an open circuit sensitivity greater than  
0.12 Volt

Amperes × Kilogauss

In this entry "open circuit sensitivity" is calculated by dividing the open circuit Hall voltage by the product of the control current in amperes and the nominal value of the control field.

Servo-motors (gear-head or plain), the following:—

- (1) Types designed to operate from power sources of more than 300 cycles per second (other than those designed to operate from power sources of over 300 cycles per second up to but not exceeding 400 cycles per second with a temperature range of from  $-25^{\circ}$  centigrade to  $100^{\circ}$  centigrade) ... A
- (2) Types designed to have a torque-to-inertia ratio of 10,000 radians per second per second or greater ... .. A
- (3) Types incorporating special features to secure internal damping ... A
- (4) Types employing solid state Hall effect ... .. A
- (5) Types designed to operate below  $-55^{\circ}$  centigrade or above  $125^{\circ}$  centigrade ... .. A
- (6) Specially designed components, parts, sub-assemblies and test equipment (including adaptors and couplers) for the equipment specified above. A

Synchros and resolvers possessing any of the following characteristics:—

- (1) a rated electrical error of 10 minutes or less or of 0.25 per cent or less of maximum output voltage ... .. A
- (2) a rated dynamic accuracy for receiver types of  $1^{\circ}$  or less, except that for units of size 30 (3 inches in diameter) or larger a rated dynamic accuracy of less than  $1^{\circ}$  ... .. A
- (3) multi-speed from single shaft types ... .. A
- (4) types employing solid state Hall effect ... .. A
- (5) types designed for gimbal mounting... .. A
- (6) types designed to operate below  $-55^{\circ}$  centigrade or above  $125^{\circ}$  centigrade A
- (7) special instruments (including microsyns, synchro-tels and inductosyns) rated to have any of the characteristics specified in (1), (2) and (6) of this heading ... .. A
- (8) specially designed components, parts, sub-assemblies and test equipment (including adaptors and couplers) for the equipment specified above ... A

Synchronous motors, the following:—

- (1) Types not exceeding size 30 (3 inches in diameter) having synchronous speeds in excess of 3,600 revolutions per minute ... .. A
- (2) Types designed to operate from power sources of more than 400 cycles per second ... .. A
- (3) Types designed to operate below  $-25^{\circ}$  centigrade or above  $100^{\circ}$  centigrade A
- (4) Specially designed components, parts, sub-assemblies and test equipment (including adaptors and couplers) for the equipment specified above. A

Thermal detecting cells, the following:—

Bolometers and thermocouple detectors, radiant energy types, with a response time constant of less than 10 milliseconds measured at the operating temperature of the cell for which the time constant reaches a minimum ... .. A

Thermoelectric materials and devices, the following:—

- (1) Thermoelectric materials with a maximum product of the figure of merit ( $Z$ ) and the temperature ( $T$  in °Kelvin) in excess of 0.75.
- (2) Junctions and combinations of junctions using any of the materials specified in (1).
- (3) Heat absorbing or electric power generating devices incorporating any of the junctions specified in (2).
- (4) Other power generating devices which generate in excess of 10 watts per pound or of 500 watts per cubic foot of the device's basic thermoelectric components.
- (5) Specialised parts, components and sub-assemblies for (1), (2), (3) and (4).

In this entry—

“The figure of merit ( $Z$ )” equals Seebeck coefficient squared divided by the product of electrical resistivity and thermal conductivity; and  
The weight and cubic measurement in (4) are not intended to encompass the complete device but to include only the thermoelectric elements and assembly and the components for pumping calories. Other components, such as heating or cooling sources or containers, device frames or stands and control equipment are not to be included in the calculations.

Torquers, direct current and alternating current (torque motors specially designed for gyros and stabilised platforms); and specially designed components, parts, sub-assemblies and test equipment (including adaptors and couplers) for such equipment ... .. A

Transistors and specialised parts therefor (other than photo-transistors which are specified in the entry relating to photo-electric cells in this Group), the following:—

- (1) Any type using any semi-conductor material having four or more active junctions within any single block of semi-conductor material.
- (2) Any type using a bulk semi-conductor material other than germanium or silicon.
- (3) Any type using germanium as the bulk semi-conductor material and having either of the following characteristics:—
  - (a) an average  $f_T$  of 40 to 240 megacycles per second and designed to have a maximum collector dissipation greater than 150 milliwatts;
  - (b) an average  $f_T$  greater than 240 megacycles per second.
- (4) Any type using silicon as the bulk semi-conductor material and having any of the following characteristics:—
  - (a) an average  $f_T$  of up to 500 kilocycles per second and designed to have a maximum collector dissipation greater than 5 watts;
  - (b) an average  $f_T$  from above 500 kilocycles per second to 3 megacycles per second and designed to have a maximum collector dissipation greater than 500 milliwatts;
  - (c) an average  $f_T$  from above 3 megacycles per second to 20 megacycles per second and designed to have a maximum collector dissipation greater than 250 milliwatts;

- (d) an average  $f_T$  greater than 20 megacycles per second;
- (e) majority carrier devices, including but not limited to field effect transistors and metal oxide semi-conductor transistors;
- (f) a modulus of the current gain in the common emitter configuration of 10 or more for collector currents of 100 microamperes or less.

This entry covers all devices incorporating a semi-conducting crystal of any material with three or more electrical connections or with only two such connections where four or more active junctions exist within a single block of semi-conductor material, which are used as amplifiers, oscillators or trigger devices, or in combinations thereof in electronic circuits.

In this entry—

“Maximum collector dissipation” means the continuous dissipation measured at an ambient temperature of 25° centigrade, under any cooling conditions; and

where  $f_\alpha$  (the frequency at which the modulus of the current gain in the common base connection has decreased to 0.707 of its low frequency value) is quoted instead of  $f_T$ ,  $f_T$  may be regarded as 0.8 times  $f_\alpha$ ; and

where the average  $f_T$  is not quoted or known, this value shall be taken as 1.5 times the minimum  $f_T$

Triggered spark gaps having an anode delay time of 15 microseconds or less and rated for a peak current of 3,000 amperes or more and parts specially designed therefor ... .. A

X-Ray systems, flash discharge type, including tubes, except those systems or tubes having all of the following specifications:—

- (1) peak power of 500 megawatts or less;
- (2) output voltage of 500 kilovolts or less; and
- (3) pulse width of 0.2 microseconds or more.

#### GROUP 4

##### *Chemicals*

The following goods, mixtures thereof or mixtures of any one or more of them with an inert material, either in dry form or in solution:—

Aluminium hydride.

Beryllium compounds ... .. A

Boron compounds and mixtures, excluding pharmaceutical preparations packaged for retail sale, the following:—

- (1) Boron trichloride and its complexes;  
boron trifluoride and its complexes.
- (2) Boron carbide with a boron content of 74 per cent. or more by weight;  
boron hydrides and boron nitrides.
- (3) Other boron compounds and mixtures containing 5 per cent. or more of boron, free or combined, but excluding:—
  - (a) boric oxide;
  - (b) boric acids, boric acid esters and inorganic borates;
  - (c) perborates;
  - (d) fluoroboric acids and fluoroborates; and
  - (e) enamel and glass-making compositions.
- (4) Compounds in which the boron-10 isotope comprises more than 20 per cent. of the total boron content.

Chlorine trifluoride.	
Dichlorotetrafluoroethane.	
Diethylenetriamine of a purity of 96 per cent. or higher.	
Fluorine.	
Gallium compounds, monocrystalline.	
Hafnium compounds ... ..	A
Indium compounds, monocrystalline.	
Lithium compounds and mixtures, the following:—	
(1) Compounds containing lithium enriched in the lithium-6 isotope and mixtures containing one or more such compounds ... ..	A
(2) Hydrides in which lithium is compounded with hydrogen or hydrogen isotopes or complexed with any other metal or metals or aluminium hydride ... ..	A
Niobium compounds containing 20 per cent. or more niobium.	
Primary explosives and priming compositions, the following:—	
(1) (a) Diazodinitrophenol.	
(b) Lead thiocyanate.	
(2) Mixtures containing one or more of the materials specified in head (1) of this entry.	
Sodium azide.	
Tantalum compounds containing 20 per cent. or more tantalum.	
Trichlorotrifluoroethane.	
Zirconium compounds, other than zirconium oxide thermally stabilised with calcium oxide or magnesium oxide or both ... ..	A

## GROUP 5

*Minerals and Metals*

## In this Group—

“form I” means anodes, balls, bars (including notched bars, wire bars and bar ends), billets, blocks, blooms, briquettes, cathodes, cakes, crystals, cubes, dice, grains, granules, ingots (including ingot bars and ingot discards), lumps, pellets, pigs, powder, rondelles, shot, slabs, slugs, sponge and sticks;

“form II” means wrought or worked material (whether or not coated, plated, drilled or punched) in the form of angles and channels and other sectional material (including crop ends), circles, discs, dust, flakes, foil and leaf, forgings, plates and plate cuttings, powder, pressings and stampings, raspings, ribbons, rings, rods (including bare welding rods, wire rods and rod ends), sections, shapes, shavings, sheet and sheet cuttings, strip, pipes and tubes (including tube rounds, squares and hollows) and wire;

“form III” means cast material (whether or not coated, plated, drilled or punched); and

“metallic residues and metallic wastes” and “scrap and old metal” refer to all metals whether or not specified in this Order.

## Aluminium, the following:—

- |  |   |
|--|---|
| (1) Aluminium and alloys containing 45 per cent. or more of aluminium (other than virgin aluminium of a purity of not less than 98 per cent.) in form I (other than powder) ... .. | A |
|--|---|

- (2) Goods (subjected to any process of manufacture) wholly or mainly by weight of aluminium (other than virgin aluminium in form I excluded in head (1) of this entry) or of alloy (or alloys) mainly of aluminium, not elsewhere specified, the value of which, as required by the Commissioners of Customs and Excise to be declared, does not exceed the value of the aluminium or alloy (or alloys) mainly of aluminium contained therein calculated at £200 per ton ... .. A
- (3) Aluminium and alloys containing 45 per cent. or more of aluminium, in the form of foil (coated, printed or backed with paper or other reinforcing material), the value of which, as required by the Commissioners of Customs and Excise to be declared, does not exceed £100 per ton ... A
- Beryllium, the following:—**
- Beryllium and alloys containing more than 50 per cent. of beryllium, in form I, II or III... .. A
- Manufactures wholly or mainly by weight of beryllium, other than windows for medical X-ray machines ... .. A
- Boron, the following:—**
- Boron and alloys containing 5 per cent. or more of boron, in form I, II or III, other than ferro-boron.
- Boron, alloys and mixtures containing boron in which the boron-10 isotope comprises more than 20 per cent. of the total boron content.
- Calcium containing less than 100 parts per million by weight of impurities other than magnesium and less than 10 parts per million by weight of boron ... A
- Cobalt based alloys containing a higher percentage by weight of cobalt than of any other elements and containing more than 5 per cent. of tantalum, in form I, II or III.
- Coins, the following:—**
- Coins of silver alloy of the United Kingdom minted before 1947, but not more than 100 years old at the date of exportation, other than coins exported in a quantity not exceeding 10 in number ... .. A
- Pennies and halfpennies of the United Kingdom dated before 1968, but not more than 100 years old at the date of exportation, other than coins exported in a quantity not exceeding 25 pounds by weight ... .. A
- Copper, the following:—**
- (1) Copper and alloys containing 50 per cent or more of copper (other than copper complying with the requirements of British Standards Nos. 1035, 1036, 1037, 1038, 1039, 1040, 1172, 1173, 1174, 1861 and 1954, all dated 1964) in form I (other than powder) ... .. A
- (2) Goods (subjected to any process of manufacture) wholly or mainly by weight of copper or of alloy (or alloys) mainly of copper, not elsewhere specified ... .. A
- other than—**
- (a) copper in form I (other than bar ends) complying with the requirements of the British Standards referred to in head (1) of this entry;
- (b) goods in form II (other than plate cuttings, sheet cuttings, crop ends, rod ends and shavings), unused;
- (c) bolts, nails, rivets, screws, staples, tacks and washers, unused;
- (d) (i) goods wholly or mainly of copper, the value of which as required by the Commissioners of Customs and Excise to be declared, exceeds the value of the copper contained therein calculated at £450 per ton;
- (ii) goods wholly or mainly of alloy (or alloys) mainly of copper, the value of which as required by the Commissioners of Customs and Excise to be declared, exceeds the value of the alloy (or alloys) mainly of copper contained therein calculated at £300 per ton.

Hafnium and alloys containing more than 15 per cent. of hafnium, in form I, II or III ... .. A

Iron and steel, the following:—

(1) Iron, steel and alloys of iron or steel, being iron, steel and alloys containing 50 per cent. or more of iron if—

(a) (i) armour plate ... .. A

(ii) precipitation hardening steels containing 4 per cent. or more of nickel, or

(b) containing one or more of the following constituents in the proportions stated:—

(i) 10 per cent. or more of molybdenum;

(ii) more than 5 per cent. of molybdenum together with more than 14 per cent. of chromium;

(iii) 1.5 per cent. or more, separately or combined, of niobium or tantalum;

(iv) 35 per cent. or more of alloying elements (other than iron) one of which is nickel, together with 0.4 per cent. or more of titanium or 0.8 per cent. or more, separately or combined, of niobium or tantalum,

(c) containing 5 per cent. or more of nickel, and not specified in sub-heads (a) and (b) above, and having a value which, as required by the Commissioners of Customs and Excise to be declared, does not exceed £350 per ton ... .. A

in form I, II or III.

(2) Goods (subjected to any process of manufacture) wholly or mainly by weight of iron or wholly or mainly by weight of steel, not elsewhere specified, the value of which as required by the Commissioners of Customs and Excise to be declared, does not exceed the value of the iron or steel contained therein calculated at £30 per ton ... .. A  
other than—

(a) ships and ships' hulls;

(b) pig iron not specified in head (1)(b) of this entry.

Lead and alloys containing 50 per cent. or more of lead (excluding solder in stick form) in form I (other than powder) and in the form of shavings ... .. A

Lithium, the following:—

Lithium and alloys containing 50 per cent. or more of lithium, in form I, II or III ... .. A

Lithium, alloys and mixtures containing lithium enriched in the lithium-6 isotope ... .. A

Magnesium based alloys containing a higher percentage by weight of magnesium than of any other element and one or more of the following constituents in the proportions stated:—

(a) 0.4 per cent. or more of zirconium;

(b) 1.5 per cent. or more of thorium; ... .. A

(c) 1.0 per cent. or more of rare earth metals;

(d) 10 per cent. or more of lithium,

in form I, II or III.



Magnetic materials, the following:—

- (1) Magnetic materials in all forms (including specialised forms such as core assemblies, laminations, stampings, tapes and wound cores) having any of the following characteristics:—
  - (a) initial permeability of 70,000 (using C.G.S. units) or 0.0875 (using Henry-metre units) or more;
  - (b) remanence 98.5 per cent. or over of maximum flux for materials having magnetic permeability;
  - (c) a composition capable of an energy product:—
    - (i) greater than 8 times  $10^6$  gauss-oersteds, (that is, 63,700 joules per cubic metre); or
    - (ii) of 4.85 times  $10^6$  gauss-oersteds, (that is, 38,600 joules per cubic metre) or more, and having a coercive force of 1,800 oersteds, (that is, 143,200 amperes per metre) or greater;
- (2) Grain oriented sheet or strip (and core assemblies, laminations, stampings, tapes and wound cores composed of such sheet or strip) having a thickness of 0.004 inch. (0.1 millimetre or less).

Metallic residues and metallic wastes, other than pyrites ash ... .. A

Minerals, raw and treated (including residues and tailings), containing more than 0.05 per cent. of uranium or thorium, singly or together, including but not limited to, the following:—

- |   |     |     |     |     |     |     |     |     |   |
|---|-----|-----|-----|-----|-----|-----|-----|-----|---|
| Ores containing uranium including pitchblende     | ... | ... | ... | ... | ... | ... | ... | ... | A |
| Monazite and monazite sands                       | ... | ... | ... | ... | ... | ... | ... | ... | A |
| Ores containing thorium including uranothorianite | ... | ... | ... | ... | ... | ... | ... | ... | A |

Molybdenum (with a purity of more than 99.5 per cent.) and alloys containing 95 per cent. or more of molybdenum in form I, II or III, other than wire and electrical filament.

Nickel, the following:—

- (1) Ferro-nickel and nickel melting base ... .. A
- (2) Nickel powder having a nickel content of 99 per cent. or more and a particle size less than 100 microns, whether compacted or not ... .. A
- (3) Alloys containing 35 per cent. or more of nickel together with 12 per cent. or more of chromium and 1.5 per cent. or more, separately or combined, of aluminium, niobium or titanium in which nickel predominates by weight over each of the other metals, in form I, II or III
- (4) Alloys containing a higher percentage by weight of nickel than of any other element and more than 1 per cent. of thorium oxide, in form I, II or III

Niobium and alloys—

- (a) containing 50 per cent. or more of niobium; or
- (b) having a combined content of 60 per cent. or more of niobium-tantalum, in form I, II or III, other than ferro-niobium or ferro-niobium-tantalum.

Scrap and old metal ... .. A

Silicon, the following:—

- (a) of a purity of 99.9 per cent. or more;
- (b) in ribbon form, 2 inches or more in length, whether or not processed.

Tantalum and alloys containing 60 per cent. or more of tantalum in form I, II or III, other than ferro-tantalum or ferro-tantalum-niobium.	
Thorium and alloys containing 1.5 per cent. or more of thorium, in form I, II or III	A
Titanium and alloys containing 70 per cent. or more of titanium, in form I, II or III, other than ferro-titanium.	
Tungsten, the following:—	
(1) Pressed-sintered non-porous forms weighing more than 9 kilogrammes (20 pounds), other than wire and sheet;	
(2) Pressed-sintered porous forms, whether or not infiltrated with other metals, which weigh more than 6.8 kilogrammes (15 pounds) before infiltration or more than 9 kilogrammes (20 pounds) after infiltration;	
in form I, II or III.	
In this entry—	
forms shall be regarded as porous if their density prior to infiltration is between 13.5 grammes per cubic centimetre and 16.4 grammes per cubic centimetre.	
Uranium, the following:—	
Ferro-uranium, whether briquetted or not	A
Uranium and alloys containing any percentage of uranium, in form I, II or III	A
Zinc and alloys containing 50 per cent. or more of zinc in form I (other than powder) and shavings	A
Zirconium, the following:—	
Ferro-zirconium, whether briquetted or not	A
Zirconium and alloys containing more than 50 per cent. of zirconium in form I, II or III	A
Manufactures wholly of zirconium or of alloys containing more than 50 per cent. of zirconium	A

## GROUP 6

*Engineering Products*

Anti-friction bearings and parts thereof, the following:—

- (1) Ball and cylindrical roller bearings (other than needle roller bearings) having an inner bore diameter of 10 millimetres or less and having tolerances specified in Table 2 (EP5) of British Standard 292:1969 or better and either or both of the following characteristics:
  - (a) made of any material other than—
    - (i) low carbon steel containing not more than 0.4 per cent. of carbon and no other elements except those present as impurities or in such low quantities as not to modify the basic characteristics of the steel;
    - (ii) high carbon chromium steel type En 31 as specified in British Standard 970:1955 (wrought steels), or equivalent types normally used in the manufacture of ball or roller bearings;
    - (iii) nickel-molybdenum steel type En 34 as specified in British Standard 970:1955 (wrought steels), or equivalent types normally used in the manufacture of ball or roller bearings;
  - (b) processed by heat treatment for the purpose of stabilising them for use at normal operation temperatures over 150° centigrade.

(2) Ball and cylindrical roller bearings (other than needle roller bearings and separable ball bearings and thrust ball bearings) having an inner bore diameter exceeding 10 millimetres and having tolerances specified in Table 3 (EP7) of British Standard 292:1969 or better and either or both of the characteristics in (1)(a) or (1)(b) above.

(3) Parts of ball and roller bearings, the following:—

Outer rings, inner rings, retainers, balls, rollers and sub-assemblies usable only for bearings specified in sub-items (1) and (2).

This entry also covers bearings having tolerances specified in imperial measures which are equivalent to the metric tolerances specified in British Standard 292:1969

Cable and wire, the following:—

(1) Cable (including co-axial cable) and wire, coated or insulated with, or otherwise incorporating any of the materials described in the entry relating to fluoro carbon compounds in Group 8 of this Schedule.

(2) Communication cable, the following:—

(a) Submarine cable.

(b) Co-axial cable using a mineral insulator dielectric.

(c) Co-axial cable using a dielectric aired by discs, beads, spiral, screw or any other means.

Chemical plant and equipment, the following:—

(1) Containers, jacketed only, including mobile types, for the storage or transportation of liquid gases, at temperatures below  $-170^{\circ}$  centigrade, the following:—

(a) Types specially designed for liquefied gases boiling at temperatures below  $-200^{\circ}$  centigrade, the following:—

(i) with multi-laminar type insulation under vacuum; or

(ii) with other types of insulation and having a liquid capacity of more than 946 litres and an evaporation loss rate of less than 3 per cent. per day as determined at an ambient temperature of  $24^{\circ}$  centigrade in the shade.

(b) Types specially designed for liquid fluorine.

(c) Types specially designed for liquid oxygen, nitrogen or argon, the following:—

(i) with multi-laminar type insulation under vacuum; or

(ii) for fixed storage having a capacity of 500 tons or more; or

(iii) mobile, having a capacity of 4,542 litres or more and an evaporation loss rate of less than 1.5 per cent. per day as determined at an ambient temperature of  $24^{\circ}$  centigrade in the shade.

(2) Gas liquefying equipment, the following:—

(a) Equipment for the fractional separation of air into its various components, except helium, which has been specially designed for the withdrawal of liquid end products to the total amount of 60 tons or more per 24 hour day, provided that the withdrawal of liquid oxygen or nitrogen exceeds 50 tons per 24 hour day, except plants not capable of producing more than 15 per cent. of their total daily product as extractable gas in liquid form, provided that the withdrawal of liquid oxygen or nitrogen does not exceed 12.5 per cent. of their total daily product.

(b) Equipment for the production of liquid hydrogen, other than plants with a capacity of less than  $1\frac{1}{2}$  tons per 24 hour day and not designed for, or capable of, the production of hydrogen slush.

(c) Liquid fluorine producing equipment.

(d) Helium equipment, the following:—

- (i) for the separation of helium from natural gases; or
  - (ii) capable of producing more than 20 litres of liquid helium per hour.
- (3) Plant for the production of military explosives and solid propellants, and parts specially designed therefor, including nitrators, continuous types ... .. A

Cryogenic equipment, the following:—

- (1) Equipment designed for maintaining an ambient temperature below  $-170^{\circ}$  centigrade—
- (a) Designed for use in marine, airborne or space applications ... A
  - (b) Ruggedised for mobile ground use ... .. A
  - (c) Designed to maintain operating temperatures for electrical, magnetic or electronic equipment or components ... .. A
- (2) Electrical, magnetic or electronic equipment and electrical conductors designed for operation continuously or discontinuously at ambient temperatures below  $-170^{\circ}$  centigrade ... .. A
- (3) Specially designed accessories, sub-assemblies, parts or components for (1) and (2) ... .. A

Electron beam equipment, the following:—

- (1) Welding and machining equipment, and specialised parts therefor, except non-vacuum beam welders.
- (2) Equipment for the deposition of thin film, the coating of thin film, or the working of both of these, and specialised parts therefor ... .. A

Environmental chambers capable of pressures of 26 torr or less, including those with a pressure capability only and those which also are capable of simulating other environments such as radiation and temperature, other than equipment fitted with industrial machinery not specified in Schedule 1 of this Order; and specially designed parts, controls and devices therefor ... .. A

Furnaces, electric vacuum, including those capable of operating with protective atmospheres such as argon and helium, the following:—

- (1) Consumable electrode vacuum arc furnaces with a capacity in excess of 5 tons.
- (2) Skull type vacuum arc furnaces.
- (3) Electron beam vacuum furnaces.
- (4) Cold crucible vacuum induction furnaces designed to operate at pressures lower than 0.1 millimetre of mercury and at temperatures from  $1,100^{\circ}$  centigrade to  $1,650^{\circ}$  centigrade.
- (5) Vacuum induction furnaces designed to operate at temperatures higher than  $1,650^{\circ}$  centigrade.
- (6) Resistance vacuum furnaces designed to operate at temperatures higher than  $1,650^{\circ}$  centigrade.
- (7) Specialised parts and controls for the furnaces specified in sub-heads (1) to (6).

Gas turbine engines for marine propulsion, whether originally designed as such or adapted for such use from aero-engines.

Machines and apparatus for the manufacture or testing of electronic devices, components and materials, the following:—

- (1) Equipment for the manufacture of electronic valves (including components and sub-assemblies therefor), the following:—
- (a) Machines and apparatus specially designed for the manufacture of electronic valves specified in Group 3.

- (b) Machines and apparatus for the automatic or semi-automatic assembly of electronic valves, other than standard equipment for the assembly of entertainment type receiver tubes or television picture tubes not described in the entry relating to cathode ray tubes specified in Group 3.
  - (c) Automatic or semi-automatic testing or sorting or testing and sorting equipment for use with machines and apparatus mentioned in sub-heads (a) and (b).
- (2) Machines and apparatus for the manufacture of semi-conductor devices, assemblies and sub-assemblies specified under electronic equipment and components in Group 3 (including components and sub-assemblies therefor) the following:—
- (a) Machines and apparatus specially designed for the manufacture of transistors and crystal diodes specified in Group 3 and any types of silicon transistors.
  - (b) Equipment for one or more of the following operations:— slicing, dicing, scribing, slice breaking, probing, testing, sorting.
  - (c) Bonders and welders, other than general purpose resistance type spot welders.
  - (d) Masks.
  - (e) Machines and apparatus for the manufacture of masks or the creation of a photosensitive pattern on the surface of a semi-conductor or insulating substrate.
- (3) Equipment, other than equipment specially designed for the zone purification of germanium, for the purifying or processing of semi-conductor materials of a kind used in the manufacture of transistors and similar devices, including equipment capable of one or more of the following operations:—
- (a) purifying beyond 99.9 per cent.;
  - (b) equalising distribution of residual impurities;
  - (c) achieving controlled introduction of impurities;
  - (d) producing monocrystalline materials, including forming on substrate.
- (4) Equipment specially designed to produce electronic assemblies by depositing or printing on insulating materials or otherwise forming, in situ, component parts other than basic wiring.
- (5) Specialised controls, parts and accessories for equipment mentioned in sub-heads (1), (2), (3) and (4).

Machines and apparatus for the working of synthetic film of a kind used as a dielectric (condenser tissue) or as magnetic recording tape and parts thereof, the following:—

- (1) Vacuum metallising machines and specialised parts therefor, specially designed for the continuous coating with metallised sheathing of synthetic film for dielectric use in the manufacture of capacitors capable of reliable performance in relation to their electrical and mechanical characteristics and maintaining their design service life-time while operating either over the whole range of ambient temperatures from below  $-45^{\circ}$  centigrade to above  $100^{\circ}$  centigrade; or at ambient temperatures of  $200^{\circ}$  centigrade or higher.
- (2) Equipment specially designed for the continuous coating of polyester base magnetic tape of the kind used with the equipment described in the entry relating to recording or reproducing equipment in Group 3 of this Schedule.

Machines and apparatus specially designed for the manufacture of cable and wire described in the entry relating to cable and wire in this Group of this Schedule.

Machines and apparatus specially designed for the extrusion of polytetrafluoroethylene and co-polymer of tetrafluoroethylene and hexafluoropropylene and coagulated dispersions, powders and pastes derived therefrom, and specialised components therefor.

Machines, apparatus and tools of the kinds used for the production of aircraft and aircraft engines, the following:—

- (1) Machines, apparatus and tools for the manufacture and testing of gas turbines, the following:—
  - (a) Compressor case boring machines.
  - (b) Compressor and turbine disc turning machines.
  - (c) Machines and apparatus for making or measuring gas turbine blades.
  - (d) Rotor grinding machines.
- (2) Machines for milling aircraft skin.
- (3) Machines for the working or forming of aircraft sheet, aircraft plate or aircraft extrusions.

Machines, measuring or gauging, the following:—

Numerical control servo-driven measuring or gauging machines specially designed for measuring at any point of the contour the dimensional shape and contour characteristics of two-dimensional or three-dimensional objects, including objects of revolution.

Machines, metal working, the following:—

- (1) Gear making or gear finishing machines, the following:—
  - (a) Gear grinding machines, generating type—
    - (i) capable of accepting gear blanks of 36 inches (914 millimetres) diameter and over; or
    - (ii) designed to grind gears to a face-width of 7 inches (177 millimetres) or over for the production of helical or herringbone gears.
  - (b) Machines designed for the production of gears having a diametral pitch finer than 48 (a module finer than 0.5 millimetre) and meeting a quality standard better than Admiralty Class II.
- (2) Internal grinding machines (other than hand-held drills) of the kind incorporating or specially designed for the utilisation of grinding heads designed or rated for operation at speeds in excess of 120,000 revolutions per minute.
- (3) Jig borers and jig grinders with accuracies better than  $\pm 3$  microns.
- (4) Machines designed for or equipped with numerical control systems specially designed for controlling co-ordinated simultaneous contouring and continuous path machining movements in two or more axes.
- (5) Presses, the following:—
  - (a) Presses (stabilised equipment using rams) for applying high impact energy work forces through use of explosives or compressed gases including air.
  - (b) Presses designed or re-designed for the working or forming of metals or alloys with a melting point exceeding 1,900° centigrade.
  - (c) Presses, hydraulic, the following:—
    - (i) Vertical presses of an effective operating pressure of over 10,000 tons.
    - (ii) Horizontal presses of an effective operating pressure of over 5,000 tons.

(d) Presses, isostatic, the following:—

(i) capable of achieving a maximum working pressure of 20,000 pounds per square inch (1,406 kilogrammes per square centimetre) or more and possessing a chamber cavity with an inside diameter of more than 16 inches (40.6 centimetres); or

(ii) capable of achieving a maximum working pressure of 5,000 pounds per square inch (351 kilogrammes per square centimetre) or more and having a controlled thermal environment within the closed cavity, other than those possessing a chamber cavity with an inside diameter of less than 5 inches (12.7 centimetres) which are also capable of achieving and maintaining a controlled environment only between 80° centigrade and -35° centigrade.

(e) Control equipment and component parts specially designed for the presses in sub-head (a), (b), (c) and (d).

(6) Spin-forming machines designed for use with, or equipped with, a spindle drive motor of 50 horse-power or more.

(7) Tracer controlled machine tools, the following:—

(a) Milling and boring machines with an accuracy of  $\pm 0.001$  inch ( $\pm 0.025$  millimetres) or better and a repeatability of  $\pm 0.0005$  inch ( $\pm 0.0125$  millimetre) or better.

(b) Lathes with an accuracy of  $\pm 0.0004$  inch ( $\pm 0.01$  millimetre) or better and a repeatability of  $\pm 0.0002$  inch ( $\pm 0.005$  millimetre) or better.

(c) Specialised accessories and components for equipment mentioned in sub-heads (a) and (b).

Machines of which the motions for positioning, wrapping and winding of fibres are co-ordinated and programmed in three or more axes, specially designed to fabricate composite structures or laminates from fibrous and filamentary materials, and the mechanical parts of the machines, coordinating and programming controls, and specialised parts, components and accessories therefor.

Machine tool parts, accessories and associated apparatus, the following:—

Numerical control systems specially designed for controlling co-ordinated simultaneous contouring and continuous path machining movements in a machine tool in two or more axes.

Grinding heads and spindle assemblies for internal grinding machines (other than hand-held drills) designed or rated for operation at speeds in excess of 120,000 revolutions per minute.

Pipe and tubing made of any of the following materials whether or not reinforced with another material or pipe and tubing made of any material lined with or covered with the following materials:—

- (1) Polytetrafluoroethylene.
- (2) Polyvinylidene fluoride.
- (3) Co-polymer of tetrafluoroethylene and hexafluoropropylene.
- (4) Co-polymer of chlorotrifluoroethylene and vinylidene fluoride.
- (5) Co-polymer of hexafluoropropylene and vinylidene fluoride.

Pipe valves, cocks and pressure regulators, either—

(1) designed to operate at temperatures—

(a) below -170° centigrade if more than 2 inch (50.8 millimetres) diameter; or

(b) below -200° centigrade if of 2 inch (50.8 millimetres) diameter or less; or

(2) having all flow contact parts made of or lined with any of the following materials:—

(a) metals and alloys containing 90 per cent. or more, separately or combined, of tantalum, titanium or zirconium, except materials containing more than 97 per cent. but less than 99.7 per cent titanium.

(b) polytetrafluoroethylene or the co-polymer of tetrafluoroethylene and hexafluoropropylene.

Plasma arc equipment, the following:—

(1) Electric arc devices generating a flow of ionised gas in which the arc column is constricted, except devices wherein the flow of gas is for isolation purposes only and devices of less than 80 kilowatts for cutting, welding, plating or metal spraying.

(2) Accessories, parts and control or test equipment specially designed for arc devices as specified in (1) above.

(3) Cutting, profiling, welding and metal spraying equipment incorporating arc devices as specified in (1) above.

Presses, hydraulic, for the working of ceramics, the following:—

(1) Vertical presses with an effective operating pressure of over 10,000 tons.

(2) Horizontal presses with an effective operating pressure of over 5,000 tons.

(3) Control equipment and component parts specially designed for the presses specified in sub-heads (1) and (2).

Pumps, the following:—

(1) Pumps capable of delivering liquids separately or in combination with solids, gases, or solids and gases, and having any of the following characteristics:—

(a) designed to move molten metals by electromagnetic forces... .. A

(b) designed to operate—

(i) at a flow rate above 379 litres per minute and at temperatures below  $-170^{\circ}$  centigrade ... .. A

(ii) at a flow rate of 379 litres per minute or less and at temperatures below  $-200^{\circ}$  centigrade ... .. A

(c) all flow contact surfaces made of any of the following materials:—

(i) metals and alloys containing 90 per cent. or more, separately or combined, of tantalum, titanium or zirconium, except materials containing more than 97 per cent., but less than 99.7 per cent. titanium

(ii) polytetrafluoroethylene or the co-polymer of tetrafluoroethylene and hexafluoropropylene ... .. A

(2) Vacuum pumps, the following:—

(a) Ion vacuum pumps with pumping speeds of 800 or more litres of hydrogen per second at a pressure of  $10^{-6}$  millimetres of mercury or more.

(b) Turbo-molecular pumps having a capacity higher than 2,000 litres of nitrogen per second.

(c) Diffusion pumps rated for un baffled pumping speeds of more than 50,000 litres of nitrogen per second at pressures of  $10^{-4}$  millimetres of mercury or less.

(d) Cryopump systems in which the circulation of liquefied gas is used to achieve a vacuum by lowering the temperature of the environment.

(e) Parts, controls and accessories specially designed for the equipment specified in sub-heads (a), (b), (c) and (d) above.



Rolling mills of the kind used for the reduction of metal by rolling, the following:—

- (1) Sheet and strip mills more than 3-high.
- (2) Mills specially designed or re-designed for the rolling of metals or alloys with a melting point exceeding 1,900° centigrade.
- (3) Specialised controls and component parts (other than rolls and ancillary equipment) for the mills mentioned in sub-heads (1) and (2).

Vibration testing equipment (other than mechanical type vibrators) capable of providing a thrust greater than 2,000 pounds (900 kilogrammes) and specialised ancillary equipment therefor ... .. A

Wind tunnels and devices (including but not limited to hot shot tunnels, plasma arc tunnels, shock tunnels, shock tubes, gas tunnels and light gas guns) capable of simulating environments at velocities of Mach 1.4 and above, and specially designed parts and accessories therefor, other than wind tunnels specially designed for educational purposes and having a maximum internal cross section measurement of less than 25 centimetres.

#### GROUP 7

##### *Transport Equipment*

Trailers and semi-trailers of a carrying capacity of 25 tons or over.

#### GROUP 8

##### *Miscellaneous*

Cattle, sheep and swine, live ... .. A

Eggs, in shell, of domestic poultry ... .. A

Fibrous and filamentary materials suitable for use in composite structures or laminates and manufactures thereof, other than carbon fibres having a specific modulus of less than  $2 \times 10^8$  and a specific tensile strength of less than  $1 \times 10^6$ , as follows:—

- (a) having both of the following characteristics:—
  - (1) specific modulus greater than  $1.25 \times 10^8$ ;
  - (2) specific tensile strength greater than  $3 \times 10^6$ ; or
- (b) having both of the following characteristics:—
  - (1) specific modulus greater than  $1 \times 10^8$ ;
  - (2) melting or sublimation point higher than 1,649° centigrade in an inert environment;
- (c) composite structures and laminates made from the materials defined in (a) and (b) above by machines of which the motions for positioning, wrapping and winding of fibres are co-ordinated and programmed in three or more axes, specially designed to make such composite structures or laminates.

In this entry—

“Specific modulus” is Young’s modulus in pounds per square inch (measured at a temperature of 23° centigrade  $\pm 2^\circ$  centigrade and a relative humidity of 50 per cent.  $\pm 5$  per cent.) divided by density in pounds per cubic inch.

“Specific tensile strength” is ultimate tensile strength in pounds per square inch (measured at a temperature of 23° centigrade  $\pm 2^\circ$  centigrade and a relative humidity of 50 per cent.  $\pm 5$  per cent.) divided by density in pounds per cubic inch.

Fluorinated silicone rubbers and other fluorinated elastomeric materials and such organic intermediates for their manufacture as contain 10 per cent. or more of combined fluorine.

Fluoro carbon compounds, the following:—

- (1) Monomers, homopolymers and co-polymers, the following:—
  - (a) Polytetrafluoroethylene.
  - (b) Oily and waxy modifications of polychlorotrifluoroethylene.
  - (c) Polyvinylidene fluoride.
  - (d) Co-polymer of tetrafluoroethylene and hexafluoropropylene.
  - (e) Co-polymer of tetrafluoroethylene and chlorotrifluoroethylene.
  - (f) Co-polymer of chlorotrifluoroethylene and vinylidene fluoride.
  - (g) Co-polymer of hexafluoropropylene and vinylidene fluoride.
  - (h) Polybromotrifluoroethylene.
  - (i) Co-polymer of bromotrifluoroethylene and chlorotrifluoroethylene.
  - (j) Dibromotetrafluoroethane.
- (2) Manufactures of one or more of the materials specified in sub-head (1) being—
  - (a) manufactures wholly thereof;
  - (b) mixtures thereof; solutions thereof;
  - (c) dispersions and emulsions thereof, whether or not containing a dispersing agent.

Fuels for aircraft engines, the following:—

Any liquid fuel, including petroleum products, which contain high energy components or compounds thereof, having a gross calorific value of not less than 23,400 British Thermal Units per pound (13,000 calories per gramme).

Graphite, artificial, whether or not coated or mixed with other elements or compounds, having an apparent relative density of not less than 1.90 when compared with water at 15.5° centigrade, other than artificial graphite which has been coated or mixed with inorganic materials to improve only its electrical conductivity, its mechanical resistance or its mechanical friction properties.

Hydraulic fluids consisting wholly or mainly of petroleum (mineral) oils which have a pour point of —34° centigrade or lower, a viscosity index of 75 or greater and are thermally stable at 371° centigrade.

Lubricating oils and greases, synthetic, being wholly or mainly—

- (1) esters of saturated aliphatic monohydric alcohols containing more than six carbon atoms with adipic or azeleic or sebacic acids; or
- (2) esters of trimethylol propane or trimethylol ethane or pentaerythritol with saturated monobasic acids containing more than six carbon atoms;  
or
- (3) fluoro-alcohol esters and perfluoroalkyl ethers; or
- (4) polyphenyl ethers containing more than 3 phenyl groups.

Poly(alkyl polysulphide) liquid polymers, not including water dispersions.

Polymeric materials and manufactures thereof, the following:—

- (a) Polyimides.
- (b) Polybenzimidazoles.

- (c) Polyimidazopyrrolones.
- (d) Aromatic polyamides.
- (e) Polyparaxylylenes.
- (f) Laminated or reinforced forms of any of the materials specified in sub-heads (a) to (e).
- (g) Manufactures of one or more of the materials specified in sub-heads (a) to (e), not included in sub-head (f), where the value of the polymeric component together with that of any other components specified elsewhere in Schedule 1 of this Order is 50 per cent. or more of the total value of the materials used.

Polymeric products of butadiene, the following:—

- (a) Carboxyl terminated polybutadiene, hydroxyl terminated polybutadiene, thiol terminated polybutadiene and cyclised 1,2-polybutadiene.
- (b) Mouldable co-polymers of butadiene and acrylic acid.
- (c) Mouldable ter-polymers of butadiene, acrylonitrile and acrylic acid or any of the homologues of acrylic acid.

Polymeric products of isoprene and isobutylene, the following:—

- (a) Carboxyl terminated polyisoprene.
- (b) Carboxyl terminated polyisobutylene.

Pork, fresh, chilled or frozen (excluding offals) ... .. A

Silicone fluids and greases, the following:—

- (a) Chlorinated or fluorinated silicone fluids.
- (b) Lubricating greases capable of operating at 180° centigrade or higher and having a drop point of 220° centigrade or higher.

Synthetic dielectric film (condenser tissue) of a thickness not exceeding 0.001 inch (0.0254 millimetres), of a kind used in the manufacture of condensers capable of operating over the whole range of ambient temperatures from below -45° centigrade to above 100° centigrade or at ambient temperatures of 200° centigrade or higher, other than:—

- (1) Unmetallised polypropylene film.
- (2) Untensilised and unmetallised polyethylene terephthalate film of a thickness of 0.00035 inch (0.009 millimetres) or more.

#### GROUP 9

##### *Valuables*

Articles, not elsewhere specified, manufactured or produced more than 100 years before the date of exportation, including works of art but not including postage stamps of philatelic interest and similar articles ... .. A

Diamonds of all kinds (but not including diamond powder) and articles mounted or set with diamonds other than dies, tools and tool parts ... .. A

## SCHEDULE 2

## ORDERS REVOKED

- The Export of Goods (Control) Order 1967 (S.I. 1967/675: 1967 I, p.2080).
- The Export of Goods (Control) (Amendment) Order 1968 (S.I. 1968/132: 1968 I, p. 353).
- The Export of Goods (Control) (Amendment No. 2) Order 1968 (S.I. 1968/370: 1968 I, p. 1025).
- The Export of Goods (Control) (Amendment No. 3) Order 1968 (S.I. 1968/845: 1968 II, p. 2260).
- The Export of Goods (Control) (Amendment No. 4) Order 1968 (S.I. 1968/1073: 1968 II, p. 2891).
- The Export of Goods (Control) (Amendment) Order 1969 (S.I. 1969/988: 1969 II, p. 2902).
- The Export of Goods (Control) (Amendment No. 2) Order 1970 (S.I. 1970/577: 1970 I, p. 1838).
- The Export of Goods (Control) (Amendment No. 3) Order 1970 (S.I. 1970/796: 1970 II, p. 2531).
- The Export of Goods (Control) (Amendment No. 4) Order 1970 (S.I. 1970/1023: 1970 II, p. 3175).
- The Export of Goods (Control) (Amendment No. 6) Order 1970 (S.I. 1970/1080: 1970 II, p. 3343).
- The Export of Goods (Control) (Amendment No. 7) Order 1970 (S.I. 1970/1166: 1970 II, p. 3937).

## EXPLANATORY NOTE

*(This Note is not part of the Order.)*

This Order revokes and replaces the Export of Goods (Control) Order 1967 and the amendments thereto. The changes (apart from minor and drafting changes) it effects are as follows:—

1. Export control is removed, except for exports to Southern Rhodesia, from personal radiation monitoring equipment, lead solder in stick form, boron minerals, thyratron tubes and horses.

2. The scope of export control is reduced in the case of cryogenic equipment (transferred from Group 1 to Group 6), explosives, non-magnetic diesel engines, noxious gases, vibration testing apparatus (transferred from Group 1 to Group 6), radio active power sources, amplifiers and oscillator devices, converters, electron-beam equipment, electronic components, film processing machines, induction potentiometers, magnetometers, oscilloscopes, radio relay equipment, servo motors, synchros and resolvers, synchronous motors, beryllium, magnetic materials, molybdenum, tantalum, tungsten, boron compounds, cable and wire, cable manufacturing machinery, hydraulic presses, pipes, valves, cocks and pressure regulators, pumps, rolling mills, wind tunnels, fluoro carbon compounds, hydraulic fluids, synthetic dielectric film and nickel.

3. Control is imposed on the export of particle accelerators, uranium hexa-fluoride production plant, electrically triggered shutters and high speed film to all countries and on the export of marine gas turbine engines, certain fibre optic plates, aluminium hydride, certain cobalt alloys and filamentary laminating equipment to countries other than Commonwealth countries (except Southern Rhodesia), the Irish Republic, the Republic of South Africa and the United States of America.

4. The scope of control is extended for the export of machines for processing nuclear materials, photographic apparatus, copper goods and iron and steel goods to all countries and for the export of cold cathode tubes, metal working machines and polymeric products of butadiene to countries other than Commonwealth countries (except Southern Rhodesia), the Irish Republic, the Republic of South Africa and the United States of America.

5. The descriptions of goods to which export control applies have been amended in the case of hovercraft, machinery for manufacturing arms, primary explosives, cathodes, diodes, electro-magnetic waveguides, electronic components, ground and marine radar, induction rate generators, recording equipment, transistors, X-ray systems, copper alloys, magnesium-based alloys, certain nickel alloys, bearings, chemical plant and equipment, machines for working synthetic film, pipe and tubing, artificial graphite and fibrous and filamentary materials.

6. Environmental chambers have been transferred from Group 1 to Group 6, inertial equipment from Group 1 to Group 3, deuterium oxide plant from Group 6 to Group 2 and automotive vehicles have been deleted from Group 7 but remain subject to export control under the tanks, self-propelled guns and vehicles heading in Group 1.

7. Control equipment in Group 3 has been split up and the sub-heads are shown as separate headings. Measuring apparatus and electronic instruments headings in Group 3 have been amalgamated into a new heading "Electronic measuring, calibrating, counting, testing and time interval measuring equipment".

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