

SCHEDULE 1

PROHIBITED GOODS

Part 2 —

Information Security

Equipment, Assemblies and Components

8A.—(8A001) Submersible vehicles⁽¹⁾ or surface vessels, as follows:

- (a) Manned, tethered submersible vehicles designed to operate at depths exceeding 1,000 m;
- (b) Manned, untethered submersible vehicles:
 - (1) Designed to **operate autonomously** and having a lifting capacity of:
 - (a) 10% or more of their weight in air; and
 - (b) 15 kN or more;
 - (2) Designed to operate at depths exceeding 1,000 m; or
 - (3)
 - (a) Designed to carry a crew of 4 or more;
 - (b) Designed to **operate autonomously** for 10 hours or more;
 - (c) Having a **range** of 25 nautical miles or more; and
 - (d) Having a length of 21 m or less;
- (c) Unmanned, tethered submersible vehicles designed to operate at depths exceeding 1,000 m:
 - (1) Designed for self-propelled manoeuvre using propulsion motors or thrusters specified in sub-head a.2. of entry 8A002; or
 - (2) Having a fibre optic data link;
- (d) Unmanned, untethered submersible vehicles:
 - (1) Designed for deciding a course relative to any geographical reference without real-time human assistance;
 - (2) Having an acoustic data or command link; or
 - (3) Having a fibre optic data or command link exceeding 1,000 m;
- (e) Ocean salvage systems with a lifting capacity exceeding 5 MN for salvaging objects from depths exceeding 250 m and having either of the following:
 - (1) Dynamic positioning systems capable of position keeping within 20 m of a given point provided by the navigation system; or
 - (2) Seafloor navigation and navigation integration systems for depths exceeding 1,000 m with positioning accuracies to within 10 m of a predetermined point;
- (f) Surface-effect vehicles (fully skirted variety) with a maximum design speed, fully loaded, exceeding 30 knots in a significant wave height of 1.25 m (Sea State 3) or more, a cushion pressure exceeding 3,830 Pa, and a light-ship-to-full-load displacement ratio of less than 0.7;

(1) See also Category 5 for encrypted communication equipment; Category 6 for sensors; Categories 7 and 8 for navigation equipment; entry 8A002 for underwater systems or equipment.

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- (g) Surface-effect vehicles (rigid sidewalls) with a maximum design speed, fully loaded, exceeding 40 knots in a significant wave height of 3.25 m (Sea State 5) or more;
- (h) Hydrofoil vessels with active systems for automatically controlling foil systems, with a maximum design speed, fully loaded, of 40 knots or more in a significant wave height of 3.25 m (Sea State 5) or more;
- (i) Small waterplane area vessels with:
 - (1) A full load displacement exceeding 500 tonnes with a maximum design speed, fully loaded, exceeding 35 knots in a significant wave height of 3.25 m (Sea State 5) or more; or
 - (2) A full load displacement exceeding 1,500 tonnes with a maximum design speed, fully loaded, exceeding 25 knots in a significant wave height of 4 m (Sea State 6) or more.

Note: A small waterplane area vessel is defined by the following formula: waterplane area at an operational design draft less than $2 \times (\text{displaced volume at the operational design draught})^{2/3}$.

(8A002) Systems or equipment(2), as follows:

Note: For underwater communications systems and underwater optical fibre cables, see Category 5 Telecommunications.

- a. Systems or equipment, specially designed or modified for submersible vehicles, designed to operate at depths exceeding 1,000 m, as follows:
 - 1. Pressure housings or pressure hulls with a maximum inside chamber diameter exceeding 1.5 m;
 - 2. Direct current propulsion motors or thrusters;
 - 3. Umbilical cables, and connectors therefor, using optical fibre and having synthetic strength members;
- b. Systems specially designed or modified for the automated control of the motion of equipment for submersible vehicles specified in entry 8A001 using navigation data and having closed loop servo-controls to:
 - 1. Enable a vehicle to move within 10 m of a predetermined point in the water column;
 - 2. Maintain the position of the vehicle within 10 m of a predetermined point in the water column; or
 - 3. Maintain the position of the vehicle within 10 m while following a cable on or under the seabed;
- c. Fibre optic hull penetrators or connectors;
- d. Underwater vision systems, as follows:
 - 1. a. Television systems (comprising camera, lights, monitoring and signal transmission equipment) having a limiting resolution when measured in air of more than 500 lines and specially designed or modified for remote operation with a submersible vehicle; or
 - b. Underwater television cameras having a limiting resolution when measured in air of more than 700 lines;

Note: Limiting resolution in television is a measure of horizontal resolution usually expressed in terms of the maximum number of lines per picture height

(2) See Category 5 Telecommunications for underwater communications systems and underwater optical fibre cable.

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- discriminated on a test chart, using Institution of Electrical and Electronic Engineers (IEEE) Standard 208/1960.
2. Systems, specially designed or modified for remote operation with an underwater vehicle, employing techniques to minimise the effects of back scatter, including range-gated illuminators or **laser** systems;
 3. Low light level television cameras specially designed or modified for underwater use containing:
 - a. Image intensifier tubes specified in sub-head a.2.a. of entry 6A002; and
 - b. More than 150,000 **active pixels** per solid state area array;
 - e. Photographic still cameras specially designed or modified for underwater use, having a film format of 35 mm or larger, and:
 1. Annotating the film with data provided by a source external to the camera;
 2. Having autofocussing or remote focussing specially designed for underwater use;
 3. Having automatic back focal distance correction; or
 4. Having automatic compensation control specially designed to permit an underwater camera housing to be usable at depths exceeding 1,000 m;
 - f. Electronic imaging systems, specially designed or modified for underwater use, capable of storing digitally more than 50 exposed images;
 - g. Light systems, as follows, specially designed or modified for underwater use:
 1. Stroboscopic light systems capable of a light output energy of more than 300 J per flash;
 2. Argon arc light systems specially designed for use below 1,000 m;
 - h. **Robots** specially designed for underwater use, controlled by using a dedicated stored programme computer:
 1. Having systems that control the **robot** using information from sensors which measure force or torque applied to an external object, distance to an external object, or tactile sense between the **robot** and an external object; or
 2. Capable of exerting a force of 250 N or more or a torque of 250 Nm or more and using titanium based alloys or **fibrous or filamentary composite** materials in their structural members;
 - i. Remotely controlled articulated manipulators specially designed or modified for use with submersible vehicles:
 1. Having systems which control the manipulator using the information from sensors which measure the torque or force applied to an external object, or tactile sense between the manipulator and an external object; or
 2. Controlled by proportional master-slave techniques or by using a dedicated stored programme computer, and having 5 degrees of freedom of movement or more;
Note: Only functions having proportional control using positional feedback or by using a dedicated stored programme computer are counted when determining the number of degrees of freedom of movement.
 - j. Air independent power systems, as follows, specially designed for underwater use:
 1. Brayton, Stirling or Rankine cycle engine air independent power systems having any of the following:
 - a. Chemical scrubber or absorber systems specially designed to remove carbon dioxide, carbon monoxide and particulates from recirculated engine exhaust;

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- b. Systems specially designed to use a monoatomic gas;
 - c. Devices or enclosures specially designed for underwater noise reduction in frequencies below 10 kHz, or special mounting devices for shock mitigation; or
 - d. Systems specially designed:
 - 1. To pressurise the products of reaction or for fuel reformation;
 - 2. To store the products of the reaction; and
 - 3. To discharge the products of the reaction against a pressure of 100 kPa or more;
2. Diesel cycle engine air independent systems, having all of the following:
- a. Chemical scrubber or absorber systems specially designed to remove carbon dioxide, carbon monoxide and particulates from recirculated engine exhaust;
 - b. Systems specially designed to use a monoatomic gas;
 - c. Devices or enclosures specially designed for underwater noise reduction in frequencies below 10 kHz or special mounting devices for shock mitigation; and
 - d. Specially designed exhaust systems that do not exhaust continuously the products of combustion;
3. Fuel cell air independent power systems with an output exceeding 2 kW having either of the following:
- a. Devices or enclosures specially designed for underwater noise reduction in frequencies below 10 kHz or special mounting devices for shock mitigation; or
 - b. Systems specially designed:
 - 1. To pressurise the products of reaction or for fuel reformation;
 - 2. To store the products of the reaction; and
 - 3. To discharge the products of the reaction against a pressure of 100 kPa or more;
- k. Skirts, seals and fingers, as follows:
- 1. Designed for cushion pressures of 3,830 Pa or more, operating in a significant wave height of 1.25 m (Sea State 3) or more and specially designed for **surface effect vehicles** (fully skirted variety) specified in head f. of entry 8A001;
 - 2. Designed for cushion pressures of 6,224 Pa or more, operating in a significant wave height of 3.25 m (Sea State 5) or more and specially designed for **surface effect vehicles** (rigid sidewalls) specified in head g. of entry 8A001;
- l. Lift fans rated at more than 400 kW specially designed for **surface effect vehicles** specified in heads f. or g. of entry 8A001;
- m. Fully submerged subcavitating or supercavitating hydrofoils specially designed for vessels specified in head h. of entry 8A001;
- n. Active systems specially designed or modified to control automatically the sea-induced motion of vehicles or vessels specified in heads f., g., h. or i. of entry 8A001;
- o. 1. Water-screw propeller or power transmission systems, as follows, specially designed for **surface effect vehicles** (fully skirted or rigid sidewall variety), hydrofoils or small waterplane area vessels specified in heads f., g., h. or i. of entry 8A001:

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- a. Supercavitating, super-ventilated, partially-submerged or surface piercing propellers rated at more than 7.5 MW;
 - b. Contrarotating propeller systems rated at more than 15 MW;
 - c. Systems employing pre-swirl or post-swirl techniques for smoothing the flow into a propeller;
 - d. Light-weight, high capacity (K factor exceeding 300) reduction gearing;
 - e. Power transmission shaft systems, incorporating **composite** material components, capable of transmitting more than 1 MW;
2. Water-screw propeller, power generation or transmission systems for use on vessels, as follows:
 - a. Controllable-pitch propellers and hub assemblies rated at more than 30 MW;
 - b. Internally liquid-cooled electric propulsion engines with a power output exceeding 2.5 MW;
 - c. **Superconductive** propulsion engines, or permanent magnet electric propulsion engines, with a power output exceeding 0.1 MW;
 - d. Power transmission shaft systems, incorporating **composite** material components, capable of transmitting more than 2 MW;
 - e. Ventilated or base-ventilated propeller systems rated at more than 2.5 MW;
 3. Noise reduction systems for use on vessels of 1,000 tonnes displacement or more, as follows:
 - a. Noise reduction systems that attenuate at frequencies below 500 Hz and consist of compound acoustic mounts for the acoustic isolation of diesel engines, diesel generator sets, gas turbines, gas turbine generator sets, propulsion motors or propulsion reduction gears, specially designed for sound or vibration isolation, having an intermediate mass exceeding 30% of the equipment to be mounted;
 - b. Active noise reduction or cancellation systems, or magnetic bearings, specially designed for power transmission systems, and incorporating electronic control systems capable of actively reducing equipment vibration by the generation of anti-noise or anti-vibration signals directly to the source;
- p. Pumpjet propulsion systems with a power output exceeding 2.5 MW using divergent nozzle and flow conditioning vane techniques to improve propulsive efficiency or reduce propulsion-generated underwater-radiated noise.

(8A990) The export of goods specified in this entry is prohibited to any destination in Iran or Iraq.

Vessels, other than those specified in entry 8A001, as follows: and specially designed components therefor;

- a. Vessels having special structural features for landing personnel and/or vehicles on a beach;
- b. Vessels capable of supporting helicopter operations and maintenance;
- c. Vessels capable of submerging;
- d. Vessels not elsewhere specified in this Part of this Schedule of below 100 tonnes GRT including inflatable craft in an inflated or uninflated state;
except:
Light vessels, fire floats and dredgers.

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(8A991) The export of goods specified in this entry is prohibited to any destination in Libya.

Vessels with decks and platforms specially strengthened to receive weapons, other than those specified in entry 8A001, and specially designed components therefor.