

PRODUCT LIABILITY IN SPACE LAW

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The liability of private enterprise in outer space, and in particular the product liability of private enterprise in outer space, is not yet governed by an international convention. The 1972 Liability Convention only covers state liability. The following article studies the product liability of private enterprises engaged in space activities according to the national laws of a number of selected jurisdictions, conflicts of law, and the emerging uniform European law on product liability, and offers proposals for a future worldwide agreement in the field.

I. INTRODUCTION

Product liability, the civil responsibility of a manufacturer¹ for dangerous or defective products, has attracted a great deal of attention in legal literature since World War II. Particularly topical is the product liability of aircraft manufacturers, especially after the DC-10 crash at Ermonville, France, in March 1974,² and the DC-10 crash in the United States at Chicago's O'Hare Airport in May 1979. The product liability of spacecraft manufacturers has not as yet been studied extensively,³ but interest in the subject is growing after the crash of COSMOS 954 in the Canadian Northwest Territories in January 1978,⁴ and the crash of SKYLAB in the Indian Ocean and Western Australia in July 1979.

Damage caused by space objects on the surface of the Earth is

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1. For the purposes of a study on product liability one can often identify with the manufacturer such entities as subcontractors, distributors, or importers of a product.

2. See Hall, *Memorandum on the Settlements in the Turkish Airline, McDonnell Douglas Case*, 3 ANNALS OF AIR AND SPACE LAW 615 (1978).

3. But see papers presented to the International Colloquium on Product Liability in Air and Space Transportation, Cologne, German Federal Republic, (Mar. 31-Apr. 2, 1977); Matte, *Product Liability of the Manufacturer of Space Objects*, 2 ANNALS OF AIR AND SPACE L. 375 (1977).

4. On the legal aspects of the crash of Cosmos 954, see Haanappel, *Some Observations on the Crash of Cosmos 954*, 6 J. SPACE L. 147 (1978); CAN. DEP'T. OF EXTERNAL AFFAIRS, STATEMENT OF CLAIM, No. FLA-268 (1979), reprinted in 18 INT'L LEGAL MATERIALS 899-930 (1979).

covered by two international conventions, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies⁵ (Outer Space Treaty), and the Convention on International Liability for Damage Caused by Space Objects⁶ (Liability Convention). Articles VI and VII of the Outer Space Treaty set forth the principles of state liability for activities in outer space and for damage caused by space objects of one state to another and its natural or juridical persons. Article II of the Liability Convention elaborates on state liability by providing that launching states shall be absolutely liable for damage caused by their space objects on the surface of the Earth.

The two above mentioned international instruments deal only with the liability of states and international intergovernmental organizations.⁷ The liability of private citizens or entities is not dealt with in the two conventions. Thus, the civil responsibility of spacecraft manufacturers for damage done by their products on Earth or to other spacecraft or aircraft remains an open question. The victim damaged by a space object may want to bypass the complicated claims procedures of the Liability Convention⁸ and sue directly the manufacturer of either the space object or its component parts which caused the damage. States which have paid out compensation under the Convention may want to take recourse in contract or otherwise against manufacturers or subcontractors who built the spacecraft.⁹ Often the Liability Convention will not even apply, because damage may occur in a non-contracting State or be caused by a space object of a non-contracting State.¹⁰ Furthermore, the Convention does

not apply to damage caused by a space object of a launching State to:

- (a) Nationals of that launching State;
- (b) Foreign nationals during such time as they are participating in the operation of that space object from the time of its launching or at any other stage thereafter until its

5. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *done* Jan. 27, 1967, 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 [hereinafter cited as Outer Space Treaty].

6. Convention on International Liability for Damage Caused by Space Objects, *done* Mar. 29, 1972, 24 U.S.T. 2389, T.I.A.S. No. 7762 [hereinafter cited as Liability Convention].

7. For international intergovernmental organizations, see Outer Space Treaty, *supra* note 5, art. XIII; Liability Convention, *supra* note 6, art. XXII.

8. Liability Convention, *supra* note 6, arts. XIV-XX.

9. On the subject of manufacturer's liability in contract vis-à-vis the launching state, see Matte, *supra* note 3, at 389-400.

10. See Analysis of Article I, STAFF OF SENATE COMM. ON AERONAUTICAL AND SPACE SCIENCES, 92D CONG. 2D SESS., CONVENTION ON INTERNATIONAL LIABILITY FOR DAMAGES CAUSED BY SPACE OBJECTS: ANALYSIS AND BACKGROUND DATA 23 (Comm. Print 1972).

descent, or during such time as they are in the immediate vicinity of a planned launching or recovery area as the result of an invitation by that launching State.¹¹

In all these cases state liability and manufacturers' liability will be determined outside the scope of the Liability Convention and in accordance with applicable national laws.

In the following paragraphs a study will be made of selected national laws, conflicts of law, and European treaty law as they apply to the manufacturer of a product in general or of a spacecraft in particular.

II. NATIONAL LAWS

National laws on product liability differ from jurisdiction to jurisdiction. The following eclectic survey may serve to show the variety of national laws in the field. A distinction is made between civil and common law jurisdictions and between contractual and delictual, or tort, liability.

A. Civil Law

Both in civil and in common law one differentiates between the contractual liability of the manufacturer *vis-à-vis* the immediate purchaser of his product, and the delictual or tort liability of the manufacturer *vis-à-vis* parties not in a contractual relationship with him, such as the ultimate user of the product who buys from an intermediary (distributor, importer, wholesaler, retailer, *etc.*) or an innocent bystander injured or killed by a product. In space law a manufacturer may be contractually liable, for instance, to the state, state agency (*e.g.*, NASA),¹² or international organization (*e.g.*, ESA)¹³ to which it has sold its spacecraft or the component parts thereof, not only for malfunctions (defects), but also for sums which that state, state agency, or international organization may have had to pay out as compensation to third parties injured by the product.

The liability as between spacecraft manufacturer and purchaser is usually covered by quite elaborate *standard contractual clauses*.¹⁴ In some civilian jurisdictions, such as France, it should be kept in mind, however, that the manufacturer-vendor may not contractually limit or

11. Liability Convention, *supra* note 6, art. VII.

12. National Aeronautics and Space Administration. National Aeronautics and Space Act of 1958, 42 U.S.C. § 2451 (1976).

13. European Space Agency. Convention for Establishment of a European Space Agency (May 30, 1975), EUROPEAN SPACE AGENCY, ANNUAL REPORT (1975), Annex X; reprinted in 14 INT'L LEGAL MATERIALS 855 (1975).

14. See Matte, *supra* note 3, at 389-400.

exclude his liability for latent defects in the product sold. The manufacturer-vendor must warrant the product against latent defects and because, as manufacturer, he is legally presumed to know of the latent defects in the product which he sells, he may not limit or exclude his liability. Such a limitation or exclusion would be tantamount to *dol* (fraud), actual or presumed. This presumption of knowledge of latent defects and of fraud is irrebuttable (*jure de jure*).¹⁵ Furthermore, under French law, the legal warranty by the manufacturer-vendor against latent defects passes on, as an accessory of the object sold, to the subsequent purchaser of the product.¹⁶ For all practical purposes the contractual liability of the manufacturer-vendor in France is strict. Other civil law jurisdictions, such as West Germany, are less stringent. In Germany, the manufacturer-vendor must also warrant his product against latent defects,¹⁷ but he may contractually limit or exclude his liability, except in case of proven *Vorsatz* (fraud).¹⁸ Furthermore, unlike in France, this warranty does not pass on to subsequent purchasers of the product.

More frequent than contractual actions against a manufacturer are delictual ones. In space law one could take the example of a falling spacecraft causing physical or property damage to persons on Earth, to aircraft in the sky, or to other spacecraft in orbit. In civil law the delictual actions against manufacturers arising from such damage are based upon the general notion of fault (negligence).¹⁹ Ordinarily this fault has to be proven by the plaintiff, although sometimes it may be presumed, in which case the manufacturer-defendant must prove his absence of fault.²⁰ Under the French law of product liability only lip service is paid to the fault principle these days, since it suffices that the

15. That is the judicial interpretation given to articles 1643 and 1645 of the *Code Napoléon* (French Civil Code). See Pothier, *Traité du contrat de vente*, in DE POTHIER: PRÉCÉDEES D'UNE DISSERTATION SUR SA VIE ET SES ÉCRITES ET SUIVIES D'UNE TABLE DU CONCORDANCE para. 212 at 715 (Rogron et Fribach, ed. 1835); Ghestin, *L'application des règles spécifiques de la vente à la responsabilité des fabricants et distributeurs de produits en droit français*, in LA RESPONSABILITÉ DES FABRICANTS ET DISTRIBUTEURS 47 (1975). In other civil law jurisdictions, such as Belgium, the presumption of knowledge and fraud resting upon the manufacturer-vendor is *rebuttable (juris tantum)*. See Judgment of Nov. 13, 1959, Cour de Cassation (Cass. civ. comm.) [1960] Pasieris Belge (Pas.), 313 (Belgium).

16. Cf. Ghestin, *supra* note 15, at 64. In the same sense, see the Supreme Court of Canada on the civil law of Québec in *General Motors Products of Canada, Ltd. v. Kravitz*, 93 D.L.R.3d 481 (1979).

17. BÜRGERLICHES GESETZBUCH [BGB] art. 459 (German Civil Code).

18. *Id.* art. 276.

19. See, e.g., CODE NAPOLÉON, arts. 1382 and 1383; BGB, arts. 823 and 831.

20. Regarding German law, see the *Hühnerpest* decision of the Bundesgerichtshof (Federal Court), Judgment of Nov. 26, 1968, Bundesgerichtshof in Zivilsachen (BGHZ), [1969]. *Neue Juristische Wochenschrift* (NJW) 269. This reversal of the burden of proof comes close to the common law rule of *res ipsa loquitur*. See also the Supreme Court of Canada on the civil law of Québec in *Cohen v. Coca-Cola, Ltd.*, 62 D.L.R.2d 285 (1967).

plaintiff prove the delivery of a defective product, which is then held to be equivalent to the fault of the manufacturer.²¹

B. Common Law

In common law a distinction should be drawn between the law of England and most other Commonwealth jurisdictions on the one hand, and United States law on the other. Under English law,²² when the liability of the manufacturer is contractual, i.e., the manufacturer is sued by his immediate purchaser, he is strictly liable for express and implied warranties. This liability may be contractually limited or excluded, but not for a fundamental breach of contract. Furthermore, the contractual liability applies only between vendor and purchaser and does not extend to subsequent purchasers²³ or to innocent bystanders injured by a product.²⁴ Privity of contract is still honored in England. Under English law, when the manufacturer is sued in tort, the action will be one in negligence according to the rule of *Donoghue v. Stevenson*.²⁵ The rule of *res ipsa loquitur* is only reluctantly used in England to reverse the burden of proof in product liability cases against manufacturers.²⁶ Strict liability of the manufacturer in tort applies very seldom and only for certain dangerous products.²⁷

United States product liability law has largely gone its own way and in many respects differs considerably from English and Commonwealth laws. In contract most states have abandoned the rule of privity, both as to subsequent purchasers²⁸ and as to innocent bystanders.²⁹ Contractual liability of the manufacturer for express and implied warranties is strict and benefits purchasers, subsequent purchasers, and innocent bystanders injured by a product.³⁰ In U.S. tort law an action in negligence against a manufacturer has been possible since 1916,³¹ but it has now been largely bypassed by actions in strict tort liability.³²

From the foregoing it follows that national laws on product liabil-

21. Cf. Viney, *La responsabilité civile du fabricant en droit français*, in LA RESPONSABILITÉ DES FABRICANTS ET DISTRIBUTEURS, *supra* note 15, at 76.

22. See generally MILLER & LOVELL, PRODUCT LIABILITY (1977).

23. Vertical privity.

24. Horizontal privity.

25. *Donoghue v. Stevenson*, [1932] A.C. 562.

26. *Grant v. Australian Knitting Mills, Ltd.* [1936] A.C. 85.

27. See *Rylands v. Fletcher*, (1868) L.R. 3H.L. 330, (1866) L.R. 1 Ex. 265.

28. See note 23 *supra*.

29. See note 24 *supra*.

30. See, e.g., *Henningsen v. Bloomfield Motors, Inc.*, 32 N.J. 358, 161 A.2d 69 (1960); U.C.C. § 2-318.

31. *MacPherson v. Buick Motor Co.*, 217 N.W. 382, 111 N.E. 1050 (1916).

32. See, e.g., *Greenman v. Yuba Power Products, Inc.*, 59 Cal.2d 57, 377 P.2d 897, 27 Cal. Rptr. 697 (1962); RESTATEMENT (SECOND) OF TORTS § 402A (1965).

ity vary considerably from jurisdiction to jurisdiction as well as within certain families of law, such as the civil and the common law. Another problem, to be discussed in the following section, is which national law to apply in a given fact pattern regarding the product liability of a spacecraft manufacturer.

III. CONFLICTS OF LAW

Spacecraft and their component parts may be manufactured in different jurisdictions; they may cause damage in different jurisdictions, or even outside any jurisdiction when they cause damage to other spacecraft in outer space.³³ The question is which national law to apply in an action against a spacecraft manufacturer, when the fact pattern involves elements which go beyond the boundaries of one and the same jurisdiction, *e.g.*, when damage is done outside the jurisdiction of the manufacturer, or inside thereof, but to foreign nationals.

A. General Rules³⁴

When the liability of the manufacturer is contractual, both civil and common law apply the law which the contracting parties have explicitly or implicitly chosen to govern their contractual relations. In the absence of such a choice of law by the contracting parties, one applies either the law of the place where the contract was entered into, or the law of the place where its obligations are to be performed, or again the law of the place which is most intimately connected with the whole contract.

When, on the other hand, the liability of the manufacturer lies in tort, or delict, both civil and common law generally apply the *lex loci delicti commissi*, the law of the place where the wrong was committed. Traditional English common law, however, conditioned the application of the *lex loci* by providing that the wrong committed should also be a tort in the sense of the *lex fori*, the law of the court seized of the case. This rule has now been largely abandoned in England, where, as in many other jurisdictions, the *lex loci* is gradually being replaced by the rule of the proper law of tort.³⁵

Two additional remarks should be made in this context. First, the civil and common law differ considerably as to the characterization of

33. Outer space does not come under national jurisdiction: *see* Outer Space Treaty, *supra* note 5, art. II.

34. *See generally* DeSaussure and Haanappel, *A Unified Multinational Approach to the Application of Tort and Contract Principles to Outer Space*, 6 SYRACUSE J. OF INT'L L. AND COM. 1 (1978).

35. *See, e.g.*, *Babcock v. Jackson*, 12 N.Y.2d 473, 191 N.E.2d 279, 240 N.Y.S.2d 743 (1963); *Boys v. Chaplin*, [1971] A.C. 356.

the legal relationship between parties to judicial proceedings. Whenever death or physical injury is involved in a particular fact pattern, common law jurisdictions usually apply tort rules, notwithstanding the existence of a contractual relationship between plaintiff and defendant. In many civil law jurisdictions, on the other hand, whenever there is a contract between plaintiff and defendant, contractual rules must be followed, even if death or physical injury is involved. Second, in cases of manufacturer's liability, the traditional *lex loci* rule may be inapplicable in all those situations where damage occurs in outer space. Outer space in private law terms is *res nullius* or, in public law terms, the *province of all mankind*.³⁶ In the absence of private international law conventions for outer space, there are no national or international laws applying in outer space to the product liability of a spacecraft manufacturer.

B. International Conventions

Conflicts of law rules applicable to the civil responsibility of manufacturers have been somewhat modified by two international agreements concluded within the framework of the Hague Conference on Private International Law.³⁷ The 1955 Hague Convention on the Law Applicable to the Sale of Corporeal Moveable Objects of 1955³⁸ applies to the vendor-buyer relationship. In the absence of choice of law by the contracting parties, the law of the habitual residence of the vendor (manufacturer or otherwise) or the law of the habitual residence of the purchaser applies, depending on where the sales order was received.³⁹ The Hague Convention on the Law Applicable to Products Liability of 1973⁴⁰ applies the law of the habitual residence of the victim, or subsidiarily, the law of the place where the damage has occurred,⁴¹ in cases concerning the extra-contractual liability of the manufacturer.

36. Outer Space Treaty, *supra* note 5, art. I.

37. Statute of the Hague Conference on Private International Law, *done* Oct. 31, 1951, 15 U.S.T. 2228, T.I.A.S. No. 5710, (entered into force July 15, 1955).

38. Convention on the Law Applicable to the Sale of Corporeal Moveable Objects, *done* Oct. 31, 1951, (entered into force July 15, 1955); *reprinted in* 1 A.J. COMP. L. 275 (1952) (unofficial English trans.) [hereinafter cited as Hague Sale of Goods Convention].

39. *Id.* arts. 2 and 3.

40. Convention on the Law Applicable to Products Liability, *opened for signature* Oct. 1, 1973, Conférence de la Haye de droit international privé, Actes et documents de la douzième session du 2 au 21 octobre 1972, Tome III, Responsabilité du fait des produits Acte finale 246-50 (1974), English translation *reprinted in* 11 INT'L LEGAL MATERIALS 1283 (1972) [hereinafter cited as Hague Products Liability Convention].

41. *Id.* arts. 4 and 5.

IV. EUROPEAN LAW

Within the framework of the Council of Europe⁴² and the European Economic Community (EEC)⁴³ two attempts have been made to harmonize substantive rules of product liability. The Council of Europe Convention on Products Liability in Regard to Personal Injury and Death of 1977⁴⁴ holds a producer⁴⁵ strictly liable for death or physical injury caused by a defect in his product.⁴⁶ Of the few available defenses for the producer, the most important one is the contributory negligence of the victim.⁴⁷ An Annex to the Convention gives Contracting States the option of limiting, by national laws, the maximum amount of compensation due by the producer.⁴⁸

In 1976, the Commission of the EEC adopted its third "Draft Directive on the Harmonization of Legislation, Administrative Rules and Regulations of Member States in the Field of Products Liability."⁴⁹ The Directive has as yet not come into force. Once in force, it will obligate Member States of the EEC to adapt their national laws to the Directive. In one sense the Directive, also based upon the principle of strict liability of the manufacturer,⁵⁰ is wider in scope than the Council of Europe Convention of 1977. The Directive not only covers cases of death and physical injury, but also includes property damage.⁵¹ In another sense it is more restrictive than the 1977 Convention in that the liability of the manufacturer is always limited to a certain maximum amount of compensation.⁵²

V. PROPOSALS FOR AN INTERNATIONAL CONVENTION

Before making any concrete proposals for an international convention on the liability of spacecraft manufacturers, a number of preliminary questions ought to be answered:

- (a) Should a private international space law convention only

42. Statute of the Council of Europe, *done* May 5, 1949, 87 U.N.T.S. 103 (1951).

43. Treaty establishing the European Economic Community, *done* Mar. 25, 1957, 298 U.N.T.S. 11.

44. Convention on Products Liability in Regard to Personal Injury and Death, *opened for signature* Jan. 27, 1977, Europ. T.S. No. 91, *reprinted* in 16 INT'L LEGAL MATERIALS 7 (1977). [hereinafter cited as Council of Europe Convention].

45. Defined in *id.* at arts. 2(b) and 3(2).

46. *Id.* art. 3(1).

47. *Id.* art. 4.

48. *Id.* Appendix (2).

49. Draft Directive on the Harmonization of Legislation, Administrative Rules and Regulations of Member States in the Field of Products Liability, 19 O.J. EUR. COMM. 9 (No. C 241) (1976), *reprinted* in 8 GA. J. INT'L. & COMP. L. 396 (1978).

50. *Id.* art. 1.

51. *Id.* art. 6(b).

52. *Id.* art. 7.

contain rules as to manufacturers' liability, or should it also cover the future liability of private enterprises engaged in space transportation systems (carriers' liability) *vis-à-vis* passengers, shippers, and third parties on Earth? It is submitted that a global convention, covering spacecraft manufacturers' liability and space carriers' liability towards passengers, shippers, and third parties is preferable. A lesson can be learned from international air law, where problems have been encountered because there are two conventional systems, one for carriers' liability *vis-à-vis* passengers and shippers⁵³ and another for liability of aircraft operators for damage caused to third parties on Earth,⁵⁴ coupled with the lack of a conventional régime for aircraft manufacturers' liability.

(b) Should such a global private international space law convention, or one solely governing spacecraft manufacturers' liability, be an agreement harmonizing conflicts of law rules or harmonizing substantive rules of law? Although a convention harmonizing conflicts of law rules seems to be acceptable, a convention harmonizing substantive rules of law is preferable.

Regardless of whether a future convention would be global or partial (*e.g.*, manufacturers liability only), if it is a conflicts of law agreement, the only equitable solution seems to be to declare as applicable law the law of the place of the habitual residence of the victim.⁵⁵ This victim-oriented rule takes account (better than any other rule) of the local living conditions of the victim of a spacecraft accident or crash. It also avoids the difficulties which one would encounter in attempting to apply the *lex loci* to outer space. In the event that the road of a convention harmonizing substantive rules of law is followed, a system of strict liability without a ceiling on the amount of compensation due by the defendant, spacecraft manufacturer, or otherwise, seems to be desirable.⁵⁶ Now that adequate insurance coverage is available for almost all activities of a commercial nature, it no longer seems desirable to adopt a system of strict liability with a limitation on the amount of recovery,

53. Convention for the Unification of Certain Rules Relating to International Carriage by Air, *done* Oct. 12, 1929, 49 Stat. 3000, T.S. No. 876, 137 L.N.T.S. 11; *as amended* by the Hague Protocol, *done* Sept. 28, 1955, 478 U.N.T.S. 371; Guatemala City Protocol, *done* March 8, 1971, 64 DEP'T. STATE BULL. 555 (1971), *reprinted* in 10 INT'L LEGAL MATERIALS 613 (1971); Montreal Protocol, *done* Sept. 25, 1975.

54. Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface, *done* Oct. 7, 1952, 310 U.N.T.S. 181 (1958); *as amended* by the Montreal Protocol, Sept. 23, 1978, *reprinted* in 3 ANNALS OF AIR AND SPACE LAW 652 (1978).

55. For contractual liability, a system of choice of law by the contracting parties should still be allowed. *Cf.* Hague Sale of Goods Convention, *supra* note 38; Hague Products Liability Convention, *supra* note 40.

56. *Cf.* Liability Convention, *supra* note 6, art. II; Council of Europe Convention, *supra* note 44.

as was done in the private international air law conventions.⁵⁷

57. *See* notes 53 and 54 *supra*.