SPACECRAFT FAILURE-RELATED LITIGATION IN THE UNITED STATES: MANY FAILURES, BUT FEW SUITS*

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ABSTRACT

The article notes the disparity between the number of spacecraft malfunctions and the number of lawsuits filed in U.S. courts by aggrieved satellite owners or their insurers. It speculates as to the causes of this disparity and proceeds to survey briefly the suits that have been brought and their outcome. In concluding remarks, the author predicts a trend toward fewer lawsuits in favor of alternative methods of dispute resolution.

INTRODUCTION

Three decades of commercial space endeavor[1] have witnessed a substantial number of spacecraft[2] malfunctions, but only a relatively small number of these failures have resulted in litigation. For example, the total number of *commercial launch* failures since 1965 that have had a nexus to the United States (*i.e.*, the launch failure has involved a U.S. satellite or launch vehicle, or both) exceed 20.[3] During this same period, only a handful of lawsuits have been filed by aggrieved satellite

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1 For ease of reference, this paper considers the commercial space age to have begun with the launch of INTELSAT I ("Early Bird") on April 6, 1965. Early Bird was built by Hughes Aircraft Company and launched into geostationary orbit for coverage of the Atlantic Ocean Region.

2 The term "spacecraft" as used here refers to both launch vehicles and satellites.

3 Information regarding spacecraft failures was provided for this Article by Nicholas Johnson of Kaman Sciences Corporation, Colorado Springs, Colorado, USA. Note that the figure provided in the text does not include satellite failures in orbit which are unrelated to the launch. Also the number reflects *commercial* launch failures only.

owners or their insurers due to launch failures.[4]

I. REASONS WHY SPACECRAFT OWNERS AND INSURERS DO NOT SUE

The disparity between spacecraft failures and resulting law suits has several explanations. Spacecraft owners whose space assets are lost or damaged often are covered by insurance. Spacecraft insurers, for their part, have been reluctant to file subrogation actions. It appears they prefer instead to suffer the losses and raise the premiums. In some cases, subrogation would entail claiming against a party which is also a customer of the same insurer on another account.

To some extent, exculpatory provisions in satellite launch and manufacturing contracts operate as a bar to litigation. Reciprocal waivers of liability between commercial launch providers and satellite customers are mandatory under United States law,[5] and are customary practice in the international space industry. The waivers typically provide that the launch company and the satellite customer agree to assume the risk of any property damage[6] they respectively may sustain, and usually extend also to cover the parties' subcontractors.[7]

The time and expense involved in protracted and technically complex spacecraft litigation also act as a deterrent to litigation. Also, the time burden on corporate executives who would be called to testify, along with the prospect of potentially embarrassing disclosures that could tarnish the corporate reputation, have led companies to pursue alternative means of dispute resolution. Launch and satellite purchase contracts increasingly provide that the parties shall submit their disputes to arbitration.

Finally, in some cases -- especially in the early days of the commercial space age, but even today -- uninsured spacecraft losses simply have been accepted as the price of doing business in a high risk, high technology environment where standards for spacecraft quality control are still evolving.

On the other hand, in situations where these reasons have not been

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4 In addition, some suits have been filed due to satellite malfunction on orbit, *see supra* note 3. The paper does not address third party liability claims for damage caused by reentered spacecraft to the ground. Only one such claim has been filed. *See* Canadian Statement of Claim, 18 I.L.M. 899 (1979). (Canada claimed $6 million for alleged damage caused when radioactive debris from a reentered Soviet nuclear-powered ocean surveillance satellite, COSMOS 954, was scattered over large areas of the Canadian North-West Territories). The paper also does not address the litigation resulting from the *Challenger* disaster. *See, e.g., Smith v. Morton Thiokol*, Case No. C.A. 87-398-CIV-ORL-19, filed in Federal court for the Middle District of Florida, February 22, 1988 (regarding the action brought on behalf of Shuttle Commander M.J. Smith). The case was settled.

5 49 U.S.C. § 70112(b) (1994) and DOT Waiver Agreement (mandating reciprocal waivers with respect to claims for property damage "resulting from an activity carried out under the license"). The very purpose of these waivers is to prevent extensive litigation between the parties, including their customers and subcontractors, which otherwise might result. *Commercial Space Launch Act Amendments of 1988*, S. REP. No. 100-593, 100th CONG., 2ND SESS. (Oct. 7, 1988), at 14.

6 Sometimes parties agree to waive liability beyond property damage, *e.g.*, for loss of revenue and other consequential damage.

7 Typically, each party will agree not to claim against the other party's subcontractors while also agreeing to indemnify the other party and its subcontractors against liability resulting from claims brought by its own subcontractors. *See* 49 U.S.C. § 70112(b) (1994).

present or prevailing, litigation has ensued. The cases can be grouped in three categories: 1) suits against the manufacturers by aggrieved satellite owners; 2) subrogation suits by insurers against spacecraft manufacturers; and 3) suits against insurers by satellite owners based on insurance policies.

II. THE SATELLITE OWNER VERSUS THE SPACECRAFT MANUFACTURER

Over the last decade, a small number of tort and contract actions have been brought by aggrieved satellite owners against launch vehicle and satellite manufacturers. Most recently, in March of this year, American Telephone & Telegraph Company (AT&T) sued Martin Marietta Corporation (now Lockheed Martin) over the loss of its TELSTAR 402 satellite. The suit has since been settled.

A. Martin Marietta Corporation v. INTELSAT

Most notorious among the cases involving a satellite owner's claim against a manufacturer is *Martin Marietta Corporation v. INTELSAT.*[8] This case arose out of the miswiring of the Titan III rocket used to launch the INTELSAT VI satellite on March 14, 1990. Due to the miswiring, the satellite and its booster stage failed to separate from the rocket's second stage. To prevent reentry into the atmosphere, the INTELSAT satellite was separated from its booster and rocket stage. Thus deprived of its booster, the satellite was left to drift in a useless low-Earth orbit.

Martin Marietta, expecting a claim from the International Telecommunications Satellite Organization (INTELSAT), filed a declaratory judgment action in Federal District Court in Maryland seeking a declaration that it owed INTELSAT nothing due to the exculpatory provisions in the launch contract and the Commercial Space Launch Act.[9] The contract included reciprocal waivers of liability allegedly precluding claims for the satellite loss. It also contained an exclusive remedy provision offering a relaunch as the sole remedy with respect to the launch costs, and a provision precluding recovery for lost revenues.

INTELSAT counterclaimed. It alleged negligence, gross negligence, negligent misrepresentation, and breach of contract on the part of Martin Marietta, and claimed compensatory damages in the amount of "at least $400 million" to cover the loss of its satellite, along with launch costs and lost revenues. Martin Marietta filed a motion to dismiss INTELSAT's counterclaim.

The District Court granted Martin Marietta's motion to dismiss. The judge noted that while public policy reasons normally prohibit enforcement of contractual waivers of liability in cases involving gross negligence, "in the special context of this case, public policy strongly favors enforcement of waivers of all tort claims, including those for gross negligence."[10]

On appeal, the Fourth Circuit Court in Richmond, Virginia, affirmed in

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8 763 F. SUPP. 1327 (1991), *aff'd. in part, denied in part* 978 F.2d 140 (1992), *as amended* 991 F.2d 94 (1992). *See* P. Meredith & G. Robinson, SPACE LAW: A CASE STUDY FOR THE PRACTITIONER (1992) [hereinafter cited as "Robinson & Meredith"], at 283-286 (describing the case). *See also* P. Bostwick, *Liability of Aerospace Manufacturers: MacPherson v. Buick Sputters Into the Space Age*, 22 J. SPACE L. 75 [hereinafter "Bostwick, Liability of Aerospace Manufactures"], at 82-83, 87-88, 90, and 93-94 (describing various aspects of the court's decision).

9 49 U.S.C. § 70112(b) (1994). *See supra* note 5 and accompanying text (providing that the Commercial Space Launch Act calls for reciprocal waivers of liability between the launch provider and satellite customer).

10 *Martin Marietta,* 763 F. SUPP. 1327, 1333.

part and denied in part the District Court's decision. Interestingly, the court noted that Martin Marietta could not waive liability for gross negligence under Maryland law, which governed the contract. Moreover, said the court, nothing in the Commercial Space Launch Act, as amended,[11] or its legislative history, reflects a Congressional intent to protect launch companies against their own gross negligence, as Martin Marietta had argued.[12]

The case was not pursued further as the parties settled in 1993. A contributing factor to the settlement was the acquisition by Martin Marietta of GE Astro Space, which was under contract to INTELSAT for the manufacture of the INTELSAT VIII series of satellites.

B. AT&T v. Martin Marietta Corporation

On March 6, 1995, AT&T filed suit in U.S. District Court in Alexandria, Virginia, against Martin Marietta over the failure of the TELSTAR 402 satellite, the delay in the delivery of TELSTAR 403, and the agreement to launch TELSTAR 403.[13]

TELSTAR 402 was launched successfully on an Ariane launch vehicle in September 1994, but failed shortly after separation from the launch vehicle. The satellite was insured for $187.2 million and AT&T recovered that amount from its insurers. It then turned to Martin Marietta with claims for uninsured direct and consequential damages exceeding $250 million and punitive damages for what AT&T termed "malicious" conduct on the part of Martin Marietta and "willful and wanton disregard for AT&T's rights."[14] AT&T alleged breach of warranty, breach of the satellite purchase contract,[15] breach of the implied covenant of good faith and fair dealing, negligent misrepresentation, and fraud.

AT&T also claimed damages exceeding $150 million for lost profit, goodwill and to recover payments for the lease of satellite capacity from others to service AT&T customers. They further demanded specific performance with respect to the delay in the delivery of the TELSTAR 403 satellite. This claim was based on alleged breach of contract. In addition, AT&T claimed damages and specific performance with regard to the launch agreement for TELSTAR 403.[16]

Lockheed Martin (by the time the suit was settled the companies were formally merged) and AT&T settled their suit shortly after it was filed. Settlement terms were not disclosed except to say that AT&T expected TELSTAR 403 to be shipped to the launch site by July 15, 1995, and that this satellite would be launched on an Ariane launch vehicle, rather than a Lockheed Martin Atlas vehicle.[17] The satellite was launched on an Ariane vehicle.

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11 49 U.S.C. § 70101-70119, *as amended. See* P.L. 98-575 (Nov. 15, 1988) (adopting the 1988 Amendments to the Commercial Space Launch Act).

12 *Martin Marietta,* 978 F. 2d 140, 146.

13 Case No. C.A. 95-297A. Martin Marietta filed related actions against AT&T in U.S. District Court in New Jersey, Case No. C.A. 95-989 (MLP) and in state court in Colorado, Case No. C.A. 95 CV 425 (Div 3).

14 AT&T Complaint (Mar. 6, 1995), at 35, 43, and 44.

15 The TELSTAR 402 and 403 satellite purchase contract was entered into in August 1989 between AT&T and General Electric's Astro Space division. In 1993, Martin Marietta acquired the Astro Space division.

16 Martin Marietta purchased General Dynamics' Atlas launch vehicle division after the latter had entered into a launch agreement with AT&T for the launch of TELSTAR 403.

17 Reuters, May 15, 1995.

C. Public Broadcasting Service v. Hughes Aircraft Company

In *Public Broadcasting Service v. Hughes Aircraft Company,*[18] Public Broadcasting Service (PBS), the owner of four transponders on the WESTAR IV satellite, sued Hughes Aircraft Company, the manufacturer of WESTAR IV, for breach of express warranty with respect to the satellite's useful life.[19] PBS, which brought the suit in United States District Court, Central District of California, in February 1990, claimed that Hughes had warranted that WESTAR IV would have, at a minimum, a10 year life span, a claim Hughes denied. Estimates indicated that the satellite's life would expire 15 months prior to that time due to lack of fuel.

PBS had purchased the transponders on WESTAR IV from Western Union (now New Valley Corporation), then the owner of the satellite.[20] The spacecraft performance specifications that were part of the original satellite purchase contract between Western Union and Hughes were incorporated by reference into the transponder purchase contract with PBS. These specifications stipulated the satellite's lifetime, and were the basis for PBS' claim against Hughes.

PBS sought damages in the amount of the costs incurred to replace the fifteen months of lost transponder time. The case was settled shortly before trial and the terms of the settlement were not disclosed.

III. THE INSURER VERSUS THE MANUFACTURER

Only a few subrogation actions have been filed by space insurers against spacecraft manufacturers. The cases have alleged negligence on the part of the manufacturer, among other causes of action.

A. Appalachian Insurance Company v. McDonnell Douglas Corporation

Appalachian Ins. Company, et al. v. McDonnell Douglas, et al.,[21] arose out of the malfunction in 1984 of a payload assist module (PAM) which was intended to boost Western Union's communications satellite, WESTAR VI, to the geostationary altitude.[22] The PAM, which was manufactured by McDonnell Douglas and its subcontractors Hitco and Morton Thiokol, was to loft WESTAR VI from low-Earth orbit where it was deployed by the NASA Space Shuttle. Because of the failure of the PAM, the satellite was left in a useless orbit.

Western Union was paid $105 million by its insurers on a total loss basis. A group of insurers led by Appalachian then filed suit in Superior Court in Orange County, California, against McDonnell Douglas, Hitco, and Morton Thiokol, alleging negligence and strict liability, among other causes of

18 Case No. C.A. 90-0736 (C.D. Ca.).

19 *See* Meredith & Robinson, *supra* note 8, at 304. (describing briefly the case). *See also* P. Bostwick, *Star Wars: A Review of Space Litigation,* paper presented at ABA National Institute on Litigation in Aviation, Washington, D.C. (Oct. 10-11, 1991), at 15-16 (describing briefly the case).

20 The satellites were subsequently sold to Hughes Aircraft Company.

21 362 CAL. RPTR. 716 (1989).

22 *See* Meredith & Robinson, *supra* note 8, at 276-279 (describing the case) *See also* Bostwick, Liability of Aerospace Manufactures, *supra* note 8, at 77-82 and 91-92 (describing the case). *Lexington Ins. Co. v. McDonnell Douglas*, Case No. C.A. 481713 (Orange Co. Super. Court) arose out of the same fact situation except that it concerned the PALAPA satellite owned by the government of Indonesia, whose McDonnell Douglas PAM also malfunctioned.

action. The trial court granted summary judgment in favor of the defendants based on an exculpatory provision in the contract between Western Union and McDonnell Douglas for the purchase of the PAM.

Appalachian appealed, as did McDonnell Douglas on different grounds. The Court of Appeals for the Fourth District of California affirmed the trial court's decision. The appeals court found that waiver provisions in the contract between Western Union and McDonnell Douglas for the purchase of the PAM protected not only McDonnell Douglas, but also its subcontractors Hitco and Morton Thiokol. On the issue of strict liability, the appeals court noted that "when a lawsuit over a defective product arises in a commercial setting and involves only a business loss, the courts hold strict liability theory is not available: the parties are limited to normal commercial remedies."[23]

B. Certain Underwriters at Lloyd's v. McDonnell Douglas

On June 19, 1989, during loading onto a McDonnell Douglas Delta launch vehicle at Cape Canaveral, a crane hook fell on and damaged the INSAT 1-D satellite which was awaiting launch for India's Department of Space (DOS). Ford Aerospace (now Space Systems Loral), the satellite manufacturer, had agreed to assume the risk of damage to the satellite until launch. Ford had purchased insurance from Lloyd's to cover the risk. The company repaired the satellite and recovered the expenses from its insurers.

Subsequently, certain underwriters at Lloyd's filed a subrogation action against McDonnell Douglas alleging negligence, negligent misrepresentation, and gross negligence.[24] McDonnell Douglas argued, among other defenses, that a waiver provision in the satellite purchase contract (between Ford and DOS) precluded the suit. According to McDonnell Douglas, Ford had agreed in its contract with DOS not to claim against McDonnell Douglas, an alleged third party beneficiary of that agreement. Lloyd's, as the party subrogated to Ford's rights, rejected the argument.

Shortly before trial in United States District Court in Orlando, Florida, in December 1992, the parties settled during court-ordered mediation.

IV. THE SATELLITE OWNER VERSUS THE INSURERS

A few suits have been brought by satellite owners against their insurers for failure to pay under launch and in-orbit insurance policies. Disputes arose when insurers denied coverage on grounds such as cancellation of the policy due to a material change in the satellite and expiration of the policy.

A. INTELSAT v. Lexington Insurance Company

In *INTELSAT v. Lexington Insurance Company,*[25] INTELSAT claimed against its insurers for total loss of the INTELSAT VA (F-14) satellite.[26] The satellite was lost during launch.

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23 362 CAL. RPTR. 716, 735.

24 *Certain Underwriters at Lloyd's, and Certain Insurance Cos. in London and in Italy v. McDonnell Douglas Corporation, et al.*, Case No. C.A. 90-833-CIV-ORL-18.

25 Case No. C.A. XXXXXX (DC Cir.198X).

26 *See* P. Meredith and G. Robinson, *supra* note 8, at 355 (describing the case and citing R. Pino, Jr., *Legal Issues Arising From Space Activities,* paper presented at the Assicurazione Generali Fifth International Conference on Space Insurance, Rome, Italy (March 2-3, 1989) [hereinafter cited as "Pino, Legal Issues"], at 10-13)).

Lexington, which had underwritten the launch insurance policy for this satellite, refused to pay. It contended the policy period had expired by the time of the launch and that policy was canceled due to a material change in the insured satellite, as defined in the policy. The satellite had been modified to include an additional international business communications ("IBS") payload. Expert testimony presented during trial (July 28-August 11, 1988) indicated that adding the IBS payload affected the risk of loss during the launch phase by no more than one tenth of one percent.[27] Whether that constituted a material change was a matter for the jury to decide. The parties settled the case during jury deliberation, reportedly on terms that were favorable to INTELSAT.[28]

B. Western Union Corp. v. Lexington Insurance Company

In 1991, Western Union (now called New Valley Corporation) filed suit against its insurers alleging it was entitled to payment for insufficient fuel on board its Hughes-376 model satellites, WESTAR IV and V.[29] The reduced fuel level would serve to shorten the lifetime of these satellites, and Western Union contended its satellite in-orbit insurance policy covered the event.

A group of insurers led by Lexington Insurance Company refused to pay, asserting, among other defenses, that the policy was terminated by the time of the fuel loss. Western Union argued that, under the policy, the underwriters were required to pay for loss of fuel occurring after the expiration of the policy if the fuel loss resulted from causes known to exist during the policy period. While it had not become aware of the fuel insufficiency until after the policy expired, Western Union contended that the fuel inefficiency resulted from a cause known to have existed during the policy period.

Western Union v. Lexington Insurance Company, et al.[30] was filed in Federal court in New Jersey and has since been settled with respect to Lexington. The case is still pending against the majority or the defendants.

C. Hughes Aircraft Co. v. Lexington Insurance Company.

Hughes Aircraft Company v. Lexington Insurance Company[31] arose out of the failure of Hughes' SYNCOM IV-3 satellite to achieve geosynchonous orbit after its successful deployment from the NASA Space Shuttle on April 13, 1985.[32] The perigee kick motor, which was intended to boost the satellite to geosynchronous altitude, failed to ignite and the satellite was left to drift in a useless low-Earth orbit.

Hughes, which was under contract with the U.S. Navy for the SYNCOM satellite, entered into a agreement with NASA for a Shuttle mission to repair the satellite. It then proposed to its insurers an arrangement whereby the insurers would advance money (on the basis that the satellite was a total loss) for the repair mission, a portion of which would be repaid if the mission was successful.

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27 Pino, Legal Issues, *supra* note 26, at 10-13.

28 *Id.*

29 *Western Union v. Lexington Insurance Company, et al,* Case No. C.A. 91-193 (JWB) (D.N.J.). *See* Meredith & Robinson, *supra* note 8, at 359 (describing the case). *See also* Bostwick, Liability of Aerospace Manufactures, supra note 8, at 90, fn. 54 (describing the case).

30 Case No. C.A. 91-193 (JWB) (D.N.J.).

31 Case No. C.A. C-650-805 (L.A. County Super. Court).

32 *See* Meredith & Robinson, *supra* note 8, at 352-353 (describing the case and citing P. Bostwick, *Star Wars: A Review of Space Litigation*, Paper presented at the ABA National Institute on Litigation in Aviation, Washington, D.C. (Oct. 10-11, 1991)).

While other insurers agreed to pay, Lexington Insurance Company refused, thus giving rise to this suit filed in California State Court.[33] The jury held for Lexington at the trial court level.[34] The case is on appeal.

V. CONCLUDING REMARKS

Of the dozen or so lawsuits that have resulted from spacecraft failures, most have been settled. Some settlements were prompted by developments unrelated to the specific litigation; in other cases, the prospect of protracted and expensive litigation and potentially harmful publicity have led the parties to settle.

If there is a trend, it is toward fewer law suits. Increasingly, the expense and time involved in litigation involving complex aerospace technology will discourage potential litigants and drive the parties to alternative dispute resolution. Moreover, learning from past mistakes, satellite and launch vehicle manufacturers will continue to improve their contracts, making the exculpatory provisions tighter and leaving less opportunity for claims and liability. Finally, the consolidation in the aerospace industry may make suits less attractive as a dispute with one section of a large company could jeopardize relationships with other sections of the same company.

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33 Case No. C-650-805 (L.A. County Super. Court) California Court of Appeal for the Second District, Case No. 1356444.

34 Business Insurance, Sept. 3, 1990.