

ATLAS AIR WORLDWIDE HOLDINGS INC

Form 424B7

May 13, 2009

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Filed Pursuant to Rule 424(B)(7)
 Registration Number 333-142155

**PROSPECTUS SUPPLEMENT
 (to Prospectus dated April 30, 2007)**

4,000,000 Shares

Common Stock

The selling stockholder is offering all of the shares of our common stock offered by this prospectus supplement. We will not receive any proceeds from the sale by the selling stockholder of shares of common stock in this offering. Our common stock is listed on The NASDAQ Global Select Market under the ticker symbol AAWW. On May 11, 2009, the closing price of our common stock on The NASDAQ Global Select Market was \$29.32 per share.

Investing in our securities involves significant risks. Please read Risk Factors on page S-2 of this prospectus supplement and Risks Related to Our Business on page 2 of the accompanying prospectus, as well as the other information included and incorporated by reference herein and therein for a discussion of the factors that you should carefully consider before deciding to purchase our securities.

| | Per Share | Total |
|---|-----------|---------------|
| Initial price to public | \$ 24.00 | \$ 96,000,000 |
| Underwriting discount | \$ 1.02 | \$ 4,080,000 |
| Proceeds, before expenses, to the selling stockholder | \$ 22.98 | \$ 91,920,000 |

The selling stockholder has granted the underwriters a 30-day option to purchase up to 600,000 additional shares of common stock at the initial price to public less the underwriting discount.

Delivery of the shares will be made on or about May 18, 2009.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

Goldman, Sachs & Co.

Morgan Stanley

The date of this prospectus supplement is May 12, 2009.

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ABOUT THIS PROSPECTUS SUPPLEMENT AND THE ACCOMPANYING PROSPECTUS

This document consists of two parts. The first part is this prospectus supplement, which describes the specific terms of this offering of common stock. The second part is the accompanying prospectus or the base prospectus, which describes more general information, some of which may not apply to this offering. Generally, when we refer only to the prospectus, we are referring to both parts combined, and when we refer to the accompanying prospectus, we are referring to the base prospectus only. You should read both this prospectus supplement and the accompanying prospectus, together with the additional information described below under the heading **Where You Can Find More Information**.

If the description of this offering varies between this prospectus supplement and the accompanying prospectus, you should rely on the information in this prospectus supplement.

Any statement made in this prospectus supplement or in a document incorporated or deemed to be incorporated by reference in this prospectus supplement will be deemed to be modified or superseded for purposes of this prospectus supplement to the extent that a statement contained in this prospectus supplement or in any other subsequently filed document that is also incorporated or deemed to be incorporated by reference in this prospectus supplement modifies or supersedes that statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement. See **Where You Can Find More Information**.

You should rely only on the information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus. We and the selling stockholder have not authorized anyone to provide you with different information. This prospectus supplement and the accompanying prospectus may only be used where it is legal to sell these securities. You should not assume that the information contained in this prospectus supplement, the accompanying prospectus or the documents incorporated by reference into this prospectus supplement and the accompanying prospectus is accurate as of any date other than the respective dates of such documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

In this prospectus supplement, references to the company, AAWW, we, us and our are to Atlas Air Worldwide Holdings, Inc., a Delaware corporation, and its operating subsidiaries, unless the context requires otherwise.

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OUR COMPANY

We are the leading provider of leased wide-body freighter aircraft, furnishing outsourced air cargo operating services and solutions to the global air freight industry. As such, we manage and operate the world's largest fleet of 747 freighters. We provide unique value to our customers by giving them access to highly reliable new production freighters that deliver the lowest unit cost in the marketplace combined with outsourced aircraft operating services that lead the industry in terms of quality and global scale. Our customers include airlines, express delivery providers, freight forwarders, the U.S. military and charter brokers. We provide global services with operations in Asia, the Middle East, Australia, Europe, South America, Africa and North America.

We believe that the scale, scope and quality of our outsourced services are unparalleled in our industry. The relative operating cost efficiency of our current 747-400F aircraft and future 747-8F aircraft, including their superior fuel efficiency, capacity and loading capabilities, create a compelling value proposition for our customers.

Atlas Air Worldwide Holdings, Inc. is a holding company with a principal, wholly-owned, operating subsidiary, Atlas Air, Inc. (Atlas Air). We also have a 51% economic interest and 75% voting interest in Polar Air Cargo Worldwide, Inc. (Polar), which, since October 27, 2008, is accounted for under the equity method. On June 28, 2007, Polar issued shares representing a 49% economic interest and a 25% voting interest to DHL Network Operations (USA), Inc. (DHL), a subsidiary of Deutsche Post AG (DP). In February 2008, we formed Titan Aviation Leasing Limited (Titan) a wholly owned subsidiary based in Ireland, for the purpose of dry leasing aircraft and engines.

Our primary service offerings are:

Freighter aircraft leasing services, which encompass the following:

We provide outsourced operating solutions including the provision of crew, maintenance and insurance for the aircraft (hereinafter referred to as ACMI), while customers assume fuel, demand and yield risk. ACMI contracts typically range from three to six year periods for 747-400s and shorter periods for 747-200s. Included in ACMI is the provision of outsourced airport-to-airport wide-body cargo aircraft solutions to Polar for the benefit of DHL and other customers, which we refer to as Express Network ACMI services. Through this arrangement, we provide dedicated 747-400 aircraft servicing the requirements of DHL's global express operations through Polar as well as the requirements of Polar's other customers;

Dry leasing, whereby we provide aircraft and engine leasing solutions to third parties for one or more dedicated aircraft. We provide dry leasing services primarily to Global Supply Systems, a private company in which we own a 49% interest. We have also provided dry leasing services to other third party customers through both Atlas Air and our newly formed leasing subsidiary, Titan.

Charter services, which encompass the following:

Military charter services, whereby we provide air cargo services for the U.S. Air Mobility Command;

Commercial charters, whereby we provide all-inclusive cargo aircraft charters to brokers, freight forwarders, direct shippers and airlines. In addition, we have been providing airport-to-airport air cargo services to freight forwarders and other shipping customers in limited markets since October 2008.

AAWW was incorporated in Delaware in 2000. Our principal executive offices are located at 2000 Westchester Avenue, Purchase, New York 10577, and our telephone number is (914) 701-8000.

Our website is www.atlasair.com. The information on our website is not a part of this prospectus supplement.

Atlas and Polar hold various trademark registrations and have applications for additional registrations pending in several foreign jurisdictions. This prospectus supplement and the documents incorporated herein by reference also include trademarks, trade names and service marks of other companies. Use or display by us of other parties trademarks, trade names or service marks is not intended to and does not imply a relationship with, or endorsement or sponsorship of us by, these other parties.

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Recent Development

Increased Maintenance Expense. As we have previously disclosed, our maintenance, materials and repairs expense in the first quarter of 2009 was \$29.2 million, and such expense in the second quarter of 2009 is expected to be significantly higher. This is primarily a result of the timing of certain expenditures in this period, which we anticipate will include at least three additional C Checks on our B747-400 aircraft and four additional engine overhauls. A C Check is a high level or heavy airframe maintenance check that is generally performed at 18 month intervals.

RISK FACTORS

Investing in our securities involves risk. You should carefully consider and evaluate all of the information included and incorporated by reference in this prospectus supplement and the accompanying prospectus, including the risk factors described below and other risk factors incorporated by reference from our most recent Annual Report on Form 10-K for the fiscal year ended December 31, 2008, filed with the SEC on February 26, 2009, as updated by our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2009, filed with the SEC on May 5, 2009, and our other filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act filed after such annual report. The risk factors we have described are not the only ones we face. Our operations could also be impaired by additional risks and uncertainties. If any of these risks and uncertainties develop into actual events, our business, financial condition and results of operations could be materially and adversely affected.

U.S. citizenship requirements may limit common stock voting rights.

Under federal law and Department of Transportation (DOT) requirements, we must be owned and actually controlled by citizens of the United States, a statutorily defined term requiring, among other things, that not more than 25% of our issued and outstanding voting stock be owned and controlled, directly or indirectly, by non-U.S. citizens. DOT periodically conducts airline citizenship reviews and, if it finds that this requirement is not met, may require adjustment of the rights attendant to the airline s issued shares.

As one means to effect compliance, our certificate of incorporation and bylaws provide that the failure of non-U.S. citizens to register their shares on a separate stock record, which we refer to as the Foreign Stock Record, results in a suspension of their voting rights. Our bylaws further limit the number of shares of our capital stock that may be registered on the Foreign Stock Record to 25% of our issued and outstanding shares. Registration on the Foreign Stock Record is made in chronological order based on the date we receive a written request for registration. As a result, if a non-U.S. citizen acquires shares of our common stock and does not or is not able to register those shares on our Foreign Stock Record, they may lose their ability to vote those shares. See Description of Capital Stock Foreign Ownership Restrictions for additional information on the foreign ownership restrictions applicable to the ownership of our shares.

Our financial condition may suffer if we experience unanticipated costs or enforcement action as a result of the ongoing Antitrust Division of the United States Department of Justice fuel surcharge investigation and other lawsuits and claims.

On February 14, 2006, the Antitrust Division of the United States Department of Justice (Antitrust Division) initiated a criminal investigation into the pricing practices of a number of cargo carriers, including Polar Air Cargo LLC (Polar LLC), a wholly owned subsidiary of the Company. The Antitrust Division is investigating whether during any part of January 2000 to February 2006 cargo carriers manipulated the market price for air cargo services sold in the U.S. and abroad, through the use of fuel surcharges, in violation of the U.S. federal antitrust laws. Polar LLC s counsel has been meeting periodically with the Antitrust Division staff. On April 28, 2009, Polar received a letter from the Antitrust Division staff informing it that it is a target of a grand jury investigation in the Northern District of Georgia in

connection with the above referenced matters. This means that the Antitrust Division may ask the grand jury to indict Polar at some future time. While the letter was addressed to Polar, we believe it is more properly directed at Polar LLC, because, among other things, Polar was not an operating company during any of the periods subject to the investigation. The staff of the Antitrust Division has, however, to date declined to change the name of the target. As a result of the investigation, the Company and Polar LLC, along with a number of other cargo

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carriers, have been named co-defendants in a number of class action suits filed in multiple jurisdictions of the U.S. Federal District Court, and have been named in two civil class action suits in the provinces of Ontario and Quebec, Canada, which are substantially similar to the U.S. class action suits. Moreover, we have submitted relevant information and documentation to regulators in Australia, the European Union, Korea, New Zealand and Switzerland in connection with investigations initiated by such authorities into pricing practices of certain international air cargo carriers. These investigations and proceedings are continuing, and additional investigations and proceedings may be commenced and charges may be brought in these and other jurisdictions. Other parties may be added to these investigations and proceedings, and authorities may request additional information of the Company. If Polar LLC is unable to resolve the Antitrust Division investigation or is formally charged by the Antitrust Division as a result of this investigation, or if the Company were to incur an unfavorable outcome in connection with one or more of the related investigations or litigation, it could have a material adverse effect on the Company's business, results of operations and financial condition.

USE OF PROCEEDS

We will not receive any of the proceeds from the sale of the shares by the selling stockholder.

PRICE RANGE OF COMMON STOCK AND DIVIDEND POLICY

Since May 31, 2006, our common stock has been traded on The NASDAQ Global Select Market under the symbol AAWW. The following table sets forth the closing high and low prices per share for our common stock for the periods indicated.

| | High | Low |
|--------------------------------|-------------|------------|
| 2009 Quarter Ended | | |
| June 30 (through May 11, 2009) | \$ 32.68 | \$ 17.54 |
| March 31 | \$ 24.05 | \$ 10.03 |
| 2008 Quarter Ended | | |
| December 31 | \$ 38.09 | \$ 9.05 |
| September 30 | \$ 57.74 | \$ 37.94 |
| June 30 | \$ 64.92 | \$ 49.46 |
| March 31 | \$ 55.00 | \$ 47.13 |
| 2007 Quarter Ended | | |
| December 31 | \$ 58.59 | \$ 52.02 |
| September 30 | \$ 60.83 | \$ 48.94 |
| June 30 | \$ 59.82 | \$ 53.69 |
| March 31 | \$ 54.29 | \$ 44.00 |

The last reported sale price of our common stock on The NASDAQ Global Select Market on May 11, 2009 was \$29.32 per share. As of March 31, 2009, there were 21,079,643 shares of our common stock issued and outstanding, excluding 886,438 shares held in treasury. There were 80 stockholders of record of our common stock on such date.

We have never paid a dividend with respect to our common stock, nor do we anticipate paying a dividend in the foreseeable future. Moreover, certain of our financing arrangements contain financial covenants that could limit our ability to pay cash dividends.

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DESCRIPTION OF CAPITAL STOCK

The following description summarizes important terms of our capital stock. Because it is only a summary, it does not contain all the information that may be important to you. This description is in all respects subject to and qualified in its entirety by reference to: (i) our certificate of incorporation and our amended and restated bylaws, which are filed as exhibits to our Current Reports on Form 8-K dated February 16, 2001 (filed with the SEC on February 21, 2001) and June 27, 2006 (filed with the SEC on July 3, 2006), respectively, (ii) the certificate of designation relating to each series of preferred stock, which will be filed with the SEC in connection with an offering of such series of preferred stock and (iii) the relevant portions of the Delaware General Corporation Law.

Our authorized capital stock consists of 50,000,000 shares of common stock, \$0.01 par value, and 10,000,000 shares of preferred stock, \$1.00 par value.

Common Stock

General. As of March 31, 2009, there were 21,079,643 shares of common stock outstanding, excluding 886,438 shares held in treasury. There were 80 stockholders of record of our common stock on such date.

Voting Rights. The holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, including the election of directors, and they do not have cumulative voting rights. Accordingly, the holders of a majority of the shares of common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they so choose. Foreign Ownership Restrictions below contains a description of certain restrictions on voting by stockholders who are not U.S. citizens, as defined by applicable laws and regulations.

Dividends. Subject to preferences that may be applicable to any then outstanding preferred stock, holders of our common stock are entitled to receive ratably those dividends, if any, as may be declared by the board of directors out of legally available funds.

Liquidation, Dissolution and Winding Up. Upon our liquidation, dissolution or winding up, the holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the prior rights of any preferred stock then outstanding.

Preemptive Rights. Holders of our common stock have no preemptive or conversion rights or other subscription rights and there are no redemption or sinking fund provisions applicable to our common stock.

Assessment. All outstanding shares of our common stock are fully paid and nonassessable.

Preferred Stock

As of the date of this prospectus, 10,000,000 shares of undesignated preferred stock are authorized, none of which is outstanding. The board of directors has the authority, without further action by the stockholders, to issue from time to time the undesignated preferred stock in one or more series and to fix the number of shares, designations, preferences, powers, and relative, participating, optional, or other special rights and the qualifications or restrictions thereof. The preferences, powers, rights, and restrictions of different series of preferred stock may differ with respect to dividend rates, amounts payable on liquidation, voting rights, conversion rights, redemption provisions, sinking fund provisions, purchase funds, and other matters. The issuance of preferred stock could decrease the amount of earnings

and assets available for distribution to holders of our common stock or adversely affect the rights and powers, including voting rights, of the holders of our common stock and may have the effect of delaying, deferring or preventing a change in control of our company.

Registration Rights

On February 13, 2007, we entered into a registration rights agreement (and an amendment thereto that was made on March 12, 2007) with our largest stockholders, HMC Atlas Air, L.L.C. and Harbinger Capital Partners Special Situation Fund, L.P. (together, the Harbinger Entities) as required by our Final Modified Second Amended Joint Plan of Reorganization. As of March 4, 2009, and based on information filed with the SEC, the

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Harbinger Entities beneficially owned 8,406,290 shares (or approximately 39.9%) of our outstanding common stock, substantially all of which are covered by the registration rights agreement.

On April 16, 2007, we filed a shelf registration statement registering the resale of approximately 7.9 million shares of our common stock that are covered by the registration rights agreement and naming the Harbinger Entities as the selling security holders. In addition, HMC Atlas Air, L.L.C. has the right to request that we file with the SEC up to two additional registration statements, registering the resale of registrable shares by the Harbinger Entities, subject to certain limitations, including certain black-out rights. We also granted the Harbinger Entities piggyback registration rights with respect to registration statements filed by us for public offerings. The Harbinger Entities have agreed to enter into customary lock-up agreements that may be requested by an underwriter in connection with any offerings of common stock by us.

We have agreed to pay for certain registration expenses incurred in connection with any registration statement filed in accordance with the terms of the registration rights agreement and to reimburse the Harbinger Entities for certain legal expenses. The Harbinger Entities may transfer their rights under the registration rights agreement to certain U.S. persons that acquire at least 5% of our issued and outstanding common stock, provided that HMC Atlas Air, L.L.C. will retain the right (i) to request that we file a registration statement with the SEC and (ii) to amend, terminate or waive any term set forth in the registration rights agreement.

Certain Anti-Takeover Provisions of our Certificate of Incorporation and Bylaws and Delaware Law

Some provisions of Delaware law and our certificate of incorporation and bylaws contain provisions that could make the following transactions more difficult: (i) acquisition of us by means of a tender offer; (ii) acquisition of us by means of a proxy contest or otherwise; or (iii) removal of our incumbent officers and directors. These provisions, summarized below, are intended to encourage persons seeking to acquire control of us to first negotiate with our board of directors. These provisions also serve to discourage hostile takeover practices and inadequate takeover bids.

Issuance of Preferred Stock. As noted above, our board of directors, without stockholder approval, has the authority under our certificate of incorporation to issue preferred stock with rights superior to the rights of the holders of common stock. As a result, preferred stock could be issued quickly and easily, could adversely affect the rights of holders of common stock and could be issued with terms calculated to delay or prevent a change in control or make removal of management more difficult.

Stockholder Meetings. A majority of our board of directors, the chairman of the board or the chief executive officer may call special meetings of stockholders.

Requirements for Advance Notification of Stockholder Nominations and Proposals. Our bylaws contain advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of our board of directors or a committee thereof.

Delaware Anti-Takeover Statute. We are subject to Section 203 of the Delaware General Corporation Law, which, subject to certain exceptions, prohibits persons deemed interested stockholders from engaging in a business combination with a Delaware corporation for three years following the date these persons become interested stockholders, unless the business combination is approved in a prescribed manner. Generally, an interested stockholder is an entity or person who, together with affiliates and associates, owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a corporation's voting stock. Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by the board of directors.

The provisions of Delaware law and our certificate of incorporation and bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. Such provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make accomplishing transactions that stockholders may otherwise deem to be in their best interests more difficult.

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Other Measures that May Have an Anti-Taker Over Effect. In addition to the provisions discussed above, the Board of Directors plans to consider other measures that could have the effect of discouraging acquisitions of substantial blocks of Company common stock or otherwise discouraging acquisition transactions, including the adoption of a shareholder rights plan.

Limitations on Liability and Indemnification of Officers and Directors

Our certificate of incorporation limits the liability of our directors to the fullest extent permitted by the Delaware General Corporation Law and our bylaws provide that we will indemnify our directors and officers to the fullest extent permitted by that law.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is BNY Mellon Shareowner Services.

NASDAQ Global Select Market

Our common stock is listed on The NASDAQ Global Select Market under the symbol AAWW.

Foreign Ownership Restrictions

Under federal law and DOT requirements, we must be owned and actually controlled by citizens of the United States as that term is defined in 49 U.S.C. § 40102 (a)(15). In this regard, our President and at least two-thirds of our Board and officers must be U.S. citizens, at least 75% of our outstanding voting common stock must be owned and controlled, directly or indirectly, by persons who are citizens of the United States, and not more than 25% of our outstanding voting common stock may be owned and controlled, directly or indirectly, by persons who are not citizens of the United States. We believe that on the date of this prospectus supplement we are in compliance with these requirements.

Under our charter documents, consistent with U.S. law, there is a separate stock record, designated the Foreign Stock Record, for the registration of Voting Stock that is Beneficially Owned by persons who are not citizens of the United States. Voting Stock means all outstanding shares of our capital stock that we may issue from time to time which, by their terms, may vote. Beneficially Owned refers to owners of our securities who, directly or indirectly, have or share voting power and/or investment power.

At no time will ownership of our shares of common stock representing more than the Maximum Percentage be registered in the Foreign Stock Record. Maximum Percentage, which currently is 25%, refers to the maximum percentage of voting power of Voting Stock which may be voted by, or at the direction of, non-U.S. citizens without violating applicable statutory, regulatory or interpretative restrictions or adversely affecting Atlas's or Polar's operating certificates or authorities. If we find that the combined voting power of Voting Stock then registered in the Foreign Stock Record exceeds the Maximum Percentage, the registration of such shares will be removed from the Foreign Stock Record, in reverse chronological order based on the date of registration, and the voting rights of such Voting Stock removed from the Foreign Stock Record will be automatically suspended, sufficient to reduce the combined voting power of the shares so registered to an amount not in excess of the Maximum Percentage. It is the duty of each stockholder who is not a citizen of the United States to register his, her or its equity securities on our Foreign Stock Record.

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The information below with respect to beneficial ownership has been furnished by the selling stockholder and we have not sought to verify such information. Except as otherwise disclosed in this prospectus supplement and the accompanying prospectus, neither the selling stockholder nor any of its affiliates, officers, directors or principal equity holders has held any position or office or has had any material relationship with us or any of our predecessors or affiliates within the past three years.

The following table sets forth the name of the selling stockholder, the number of shares of common stock beneficially owned by the selling stockholder as of March 4, 2009, the number of shares of common stock that such selling stockholder may offer and sell pursuant to this prospectus supplement, and the number of shares of common stock and the percentage of the class of common stock to be beneficially owned by the selling stockholder after completion of this offering. Beneficial ownership is determined in accordance with the rules of the SEC and includes voting and investment power with respect to shares.

| Name & Address | Shares Beneficially Owned Before the Offering | | Number of Shares to be Sold in the Offering | | Shares Beneficially Owned After the Offering | | | |
|--------------------------------|---|------------------------------------|---|-----------------------------------|--|------------------------------------|-------------------------|------------------------------------|
| | Number of Shares | Percentage of Outstanding(1) | Assuming No Exercise of Option | Assuming Exercise of Option | Assuming No Exercise of | Assuming Exercise of | Assuming Exercise of | Assuming Exercise of |
| Option | | | | | Option | Option | Option | |
| Selling Stockholder | Number of Shares | Percentage of Outstanding(1) | Assuming No Exercise of Option | Assuming Exercise of Option | Number of Shares | Percentage of Outstanding(1) | Number of Shares | Percentage of Outstanding(1) |
| HMC Atlas Air, L.L.C.(2) | 7,311,376 | 34.7% | 4,000,000 | 4,600,000 | 3,311,376 | 15.7% | 2,711,376 | 12.9% |

(1) Calculated based on 21,079,643 shares of our common stock outstanding as of March 31, 2009.

(2) The securities owned by HMC Atlas Air, L.L.C., which we refer to as HMC Atlas Air, may also be deemed to be beneficially owned by Harbinger Capital Partners Offshore Manager, L.L.C., which we refer to as Harbinger Management, the Class A Shareholder of HMC Atlas Air, Harbinger Holdings, LLC, which we refer to as Harbinger Holdings, the managing member of Harbinger Management, and Philip Falcone, the managing member of Harbinger Holdings and the portfolio manager of HMC Atlas Air. The address for HMC Atlas Air is 555 Madison Avenue, 16th Floor, New York, New York 10022.

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Subject to the terms and conditions of an underwriting agreement, dated as of the date of this prospectus supplement, the underwriters named below have severally agreed with us and with the selling stockholder to purchase from the selling stockholder the number of shares of common stock set forth opposite their names below:

| Underwriter | Number of Shares |
|-----------------------------------|-------------------------|
| Goldman, Sachs & Co. | 2,400,000 |
| Morgan Stanley & Co. Incorporated | 1,600,000 |
| Total | 4,000,000 |

The underwriters are committed to take and pay for all of the shares being offered, if any are taken, other than the shares covered by the option described below unless and until this option is exercised.

If the underwriters sell more shares than offered hereby, the underwriters have an option to buy up to an additional 600,000 shares from the selling stockholder. The underwriters may exercise that option for 30 days.

The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters by the selling stockholder. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase 600,000 additional shares.

| | Paid by the Selling Stockholder | |
|-----------|--|----------------------|
| | No Exercise | Full Exercise |
| Per Share | \$ 1.02 | \$ 1.02 |
| Total | \$ 4,080,000 | \$ 4,692,000 |

Shares sold by the underwriters to the public will initially be offered at the initial public offering price set forth on the cover of this prospectus supplement. Any shares sold by the underwriters to securities dealers may be sold at a discount of up to \$0.612 per share from the initial public offering price. If all the shares are not sold at the initial public offering price, the underwriters may change the offering price and the other selling terms. The offering of the shares by any underwriter is subject to receipt and acceptance and subject to such underwriter's right to reject any order in whole or in part.

We presently expect to incur expenses of approximately \$250,000 in connection with this offering.

We have agreed with the underwriters that, subject to certain limited exceptions, without the prior written consent of the underwriters, we will not directly or indirectly, during the period commencing on the date hereof and ending 60 days after the date hereof, sell, offer to sell, grant any option for the sale of, enter into any agreement to sell, or otherwise dispose of any shares of our common stock.

The selling stockholder has agreed with the underwriters that, subject to certain limited exceptions, without the prior written consent of the underwriters, the selling stockholder will not directly or indirectly, during the period

commencing on the date hereof and ending 60 days after the date hereof, sell, offer to sell, grant any option for the sale of, enter into any agreement to sell, or otherwise dispose of any shares of our common stock.

The underwriters, in their sole discretion, may release the common stock and other securities subject to the lock-up agreements described above in whole or in part at any time with or without notice. When determining whether or not to release the common stock and other securities from lock-up agreements, the underwriters will consider, among other factors, the holder's reasons for requesting the release, the number of shares or other securities for which the release is being requested and market conditions at the time.

In connection with the offering, the underwriters may purchase and sell shares of common stock in the open market. These transactions may include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering. Covered short sales are sales made in an amount not greater than the underwriters' option to purchase additional shares from the selling stockholder in the offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to close out the covered short position, the underwriters will

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consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase additional shares pursuant to the option granted to them. Naked short sales are any sales in excess of such option. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the underwriters have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Purchases to cover a short position and stabilizing transactions, as well as other purchases by the underwriters for their own account, may have the effect of preventing or retarding a decline in the market price of the common stock, and together with the imposition of the penalty bid, may stabilize, maintain or otherwise affect the market price of the common stock. As a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued at any time. These transactions may be effected on The NASDAQ Global Select Market, in the over-the-counter market or otherwise.

Neither we nor the selling stockholder and the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of the common stock. In addition, neither we nor the selling stockholder and the underwriters make any representation that the underwriters will engage in these stabilizing transactions or that any transaction, once commenced, will not be discontinued without notice.

This prospectus supplement and the accompanying prospectus do not constitute an offer to sell or a solicitation of an offer to buy any security other than our shares offered hereby, and do not constitute an offer to sell or a solicitation of an offer to buy any shares to any person in any jurisdiction in which it is unlawful to make any such offer or solicitation to such person. Neither the delivery of this prospectus supplement and the accompanying prospectus nor any sale made hereby shall, under any circumstances, imply that there has been no change in our affairs or those of our subsidiaries or that the information contained herein is correct as of any date subsequent to the earlier of the date hereof and any earlier specified date with respect to such information. Any delivery of this prospectus supplement at any subsequent date does not imply that the information herein is correct at such subsequent date.

Shares of our common stock are listed on The NASDAQ Global Select Market under the ticker symbol AAWW.

A prospectus in electronic format may be made available on websites or through other online services maintained by the underwriters of this offering, or by their affiliates. Other than the prospectus in electronic format, the information on the underwriters' websites and any information contained in any other website maintained by the underwriters or their affiliates is not part of this prospectus supplement and accompanying prospectus or the registration statement of which this prospectus forms a part, has not been approved and/or endorsed by us or the underwriters in their capacity as underwriters and should not be relied upon by investors.

We and the selling stockholder have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act of 1933, as amended, or if indemnification is not allowed, to contribute to payments the underwriters may be required to make because of those liabilities.

From time to time, the underwriters and certain of their affiliates have engaged, and may in the future engage, in transactions with, and perform investment banking and/or commercial banking services for, us and our affiliates in the

ordinary course of business.

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LEGAL MATTERS

The legality of our common stock offered hereby will be passed upon for us by Ropes & Gray LLP, Boston, Massachusetts, and for the underwriters by Skadden, Arps, Slate, Meagher & Flom LLP, New York, New York. Paul, Weiss, Rifkind, Wharton & Garrison LLP will pass upon certain legal matters for the selling stockholder.

EXPERTS

The financial statements as of and for the years ended December 31, 2008 and 2007 and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Report on Internal Control over Financial Reporting) as of December 31, 2008, incorporated in this prospectus supplement by reference to Atlas Air Worldwide Holdings, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2008, have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements and schedule for the year ended December 31, 2006 included in our Annual Report on Form 10-K for the year ended December 31, 2008, as set forth in their report, which is incorporated by reference in this prospectus supplement. Our financial statements and schedule are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

In this prospectus supplement, we incorporate by reference the information we file with the SEC, which means that we can disclose important business, financial and other information to you in this prospectus supplement by referring you to the documents containing this information. The information incorporated by reference is considered to be part of this prospectus supplement, and information that we file with the SEC after the date of this prospectus supplement will automatically update and supersede this information. However, any information contained herein shall modify or supersede information contained in documents we filed with the SEC before the date of this prospectus supplement.

We incorporate by reference in this prospectus supplement the documents listed below and any other documents we file with the SEC in the future (other than, in all cases, the portions of those documents deemed to be furnished to, and not filed with, the SEC) under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act until the offering of all the securities that may be offered by this prospectus supplement is completed:

our Annual Report on Form 10-K for the year ended December 31, 2008 filed with the SEC on February 26, 2009 (including the portions of our definitive Proxy Statement on Schedule 14A incorporated therein by reference);

our Quarterly Report on Form 10-Q for the quarter ended March 31, 2009 filed with the SEC on May 5, 2009;

our Current Report on Form 8-K, filed with the SEC on February 6, 2009 (only with respect to Item 2.06 thereto); and

the description of our common stock which is contained in our registration statement on Form 8-A filed with the SEC on June 19, 2001 pursuant to Section 12 of the Exchange Act, including any subsequent amendments or reports filed for the purpose of updating that description.

THE INFORMATION CONTAINED ON OUR WEBSITE DOES NOT CONSTITUTE A PART OF, AND IS NOT INCORPORATED BY REFERENCE INTO, THIS PROSPECTUS SUPPLEMENT.

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WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available over the Internet at the SEC's web site at <http://www.sec.gov>. You may also read and copy any document we file with the SEC at its public reference facility:

Public Reference Room
100 F Street, N.E.
Room 1580
Washington, DC 20549

You may also obtain copies of the documents at prescribed rates by writing to the Public Reference Room of the SEC at the above address. Please call 1-800-SEC-0330 for further information on the operations of the Public Reference Room and copying charges.

We will furnish without charge to each person to whom a copy of this prospectus supplement is delivered, upon written or oral request, a copy of the information that has been incorporated into this prospectus supplement by reference but not delivered with the prospectus supplement (except exhibits, unless they are specifically incorporated into this prospectus supplement by reference). You should direct any requests for copies to:

Atlas Air Worldwide Holdings, Inc.
2000 Westchester Avenue
Purchase, New York 10577
Ph: (914) 701-8000
Attention: Adam R. Kokas, Senior Vice President, General Counsel & Secretary

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PROSPECTUS

7,939,690 Shares

Common Stock

This prospectus relates to the offer and sale of up to 7,939,690 shares of the common stock of Atlas Air Worldwide Holdings, Inc. from time to time by the selling stockholders as described on page 3 of this prospectus. We will not receive any of the proceeds from the sale of shares being sold by the selling stockholders. The selling stockholders may offer the shares through public or private transactions at prevailing market prices or at privately negotiated prices, see the Plan of Distribution beginning on page 4 of this prospectus for more details. The selling shareholders may be deemed to be underwriters within the meaning of the Securities Act of 1933, as amended, or the Securities Act. See Plan of Distribution on page 4 of this prospectus for more details. We have agreed to pay certain expenses in connection with the registration of the shares and to indemnify the selling shareholders against certain liabilities.

The shares are quoted on The NASDAQ Global Select Market under the ticker symbol AAWW. On April 12, 2007, the last sale price of the shares as reported by The NASDAQ Global Select Market was \$56.77.

Investing in our common stock involves risks that are described in our Annual Report on Form 10-K for the fiscal year ended December 31, 2006, filed with the Securities and Exchange Commission, or the SEC, on March 15, 2007, and/or any risk factors set forth in our other filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act.

Neither the SEC nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is April 30, 2007.

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You should rely only on the information contained in or incorporated into this prospectus. We and the selling stockholders have not authorized anyone to provide you with different information. This prospectus may only be used where it is legal to sell these securities. You should not assume that the information contained in this prospectus or incorporated by reference into this prospectus is accurate as of any date other than the date on the front of this prospectus. Our business, financial condition, results of operations and prospects may have changed since that date.

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SUMMARY

This summary highlights information contained elsewhere in this prospectus and the information incorporated herein by reference. Because this is only a summary, it does not contain all of the information that may be important to you. You should read the entire prospectus carefully and the information incorporated herein by reference, before deciding to invest in our common stock. In this prospectus, references to the company, AAWW, we, us and our are to Atlas Air Worldwide Holdings, Inc., a Delaware corporation, and its operating subsidiaries, unless the context requires otherwise.

Our Company

We are the leading provider of outsourced aircraft operations and related services, serving the global air freight industry by operating aircraft on behalf of the world's major international airlines, freight forwarders and the U.S. Military, as well as for our own account. Our geographic operating regions include Asia, Europe, the Middle East, South America and the United States. We are the world's largest operator of Boeing 747 freighter aircraft with an operating fleet totaling 37 aircraft at March 31, 2007 consisting of 17 Boeing 747 Classic freighters and 20 Boeing 747-400 aircraft. We will be adding to our operating fleet, having placed a firm order for 12 new Boeing 747-8 freighter aircraft in September 2006. All 12 aircraft are expected to be delivered in 2010 and 2011.

We create exceptional value by providing our customers a combination of highly reliable and proven aircraft, a large fleet and scale and scope of our network and operations. We provide flexibility to meet customer aircraft requirements, high-quality operations, and a track record for handling valuable cargo in a safe and timely manner.

Our principal business is aircraft operations outsourcing, with a focus in wide-body freighter operations. We operate aircraft on behalf of airlines, freight forwarders and the U.S. Military, as well as for our own account. Our primary services are:

Aircraft operations outsourcing, where we provide major airline customers around the world with aircraft, crew, maintenance, insurance and related operations through long-term contracts or ACMI ;

Scheduled service air-cargo, where we provide freight forwarders and other shippers with scheduled airport-to-airport cargo services;

AMC charter, where we provide military air cargo services for the Air Mobility Command;

Commercial charters, where we provide all-inclusive cargo aircraft charters to brokers, freight forwarders, direct shippers and airlines; and

Dry leasing aircraft to aircraft operators with or without any other support services.

For additional information regarding our business, please see our Annual Report on Form 10-K for the year ended December 31, 2006 and our other filings with the SEC which are incorporated by reference into this prospectus. See, "Where You Can Find More Information" on page 7 of this prospectus.

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Risks Related to Our Business

You should carefully consider the risks that are described in our Annual Report on Form 10-K for the fiscal year ended December 31, 2006, filed with the SEC on March 15, 2007, and/or any risk factors set forth in our other filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act.

Company Information

We were incorporated in Delaware in 2000. Our principal executive offices are located at 2000 Westchester Avenue, Purchase, New York 10577, and our telephone number is (914) 701-8000.

Our website is www.atlasair.com. The information on our website is not a part of this prospectus.

Our airline subsidiaries, Atlas and Polar, hold various trademark registrations and have applications for additional registrations pending in several foreign jurisdictions. This prospectus and the documents incorporated herein by reference also include trademarks, trade names and service marks of other companies. Use or display by us of other parties' trademarks, trade names or service marks is not intended to and does not imply a relationship with, or endorsement or sponsorship of us by, these other parties.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

We make forward-looking statements in, or in documents incorporated into, this prospectus that are subject to risks and uncertainties. These forward-looking statements include information about possible or assumed future results of our business, financial condition, liquidity, results of operations, plans and objectives. In some cases, you may identify forward-looking statements by words such as may, should, plan, intend, potential, continue, believe, anticipate, estimate, the negative of these words or other comparable words. These statements are only predictions. You should not place undue reliance on these forward-looking statements. Statements regarding the following subjects are forward-looking by their nature:

- our business strategy;
- our future operating results;
- our ability to obtain external financing;
- our understanding of our competition;
- industry and market trends;
- future capital expenditures;
- the impact of technology on our products, operations and business; and
- the details of our transaction with DHL which have not yet been settled.

The forward-looking statements are based on our beliefs, assumptions and expectations of our future performance, taking into account information available to us as of March 31, 2007. These beliefs, assumptions and expectations can change as a result of many possible events or factors, not all of which are known to us. Neither we nor any other person assumes responsibility for the accuracy or completeness of these statements. We will update this prospectus

only to the extent required under applicable securities laws. If a change occurs, our business, financial condition, liquidity and results of operations may vary materially from those expressed in our forward-looking statements.

The forward-looking statements in this prospectus or incorporated into this prospectus by reference are not representations or guarantees of future performance and involve certain risks, uncertainties and assumptions. Such risks, uncertainties and assumptions include, but are not limited to, any risk factors set forth in our other filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act. Many of such factors are beyond our control and are difficult to predict. As a result, our future actions, financial position, results of operations and the

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market price for shares of our common stock could differ materially from those expressed in any forward-looking statements made by us. Readers are therefore cautioned not to place undue reliance on forward-looking statements.

We also do not intend to publicly update any forward-looking statements that may be made from time to time by us or on our behalf, whether as a result of new information, future events or otherwise.

USE OF PROCEEDS

All net proceeds from the sale of the shares of common stock will go to the selling stockholders.

We will not receive any proceeds from the sale of shares by the selling stockholders. We are registering the shares for resale to provide the selling stockholders with freely tradable securities, but the registration of such shares does not necessarily mean that any of such shares will be offered or sold by the selling stockholders.

SELLING STOCKHOLDERS

The following table sets forth information regarding the selling stockholders' beneficial ownership of our common stock as of March 12, 2007, the most recent date on which the selling stockholders filed an amendment to their Schedule 13D with the SEC. Neither the selling stockholders nor any of their affiliates has held a position or office, or had any other material relationship, with us in the last three years.

| Name & Address Selling Stockholders | Number of Shares | Percentage of Outstanding | Shares to be Sold in the Offering | Shares Beneficially Owned After Offering | Percentage of Outstanding Shares Owned After Offering |
|--|---|---|---|--|---|
| | Beneficially Owned Before Offering | Shares Beneficially Owned Before Offering | | Beneficially Owned After Offering | Percentage of Outstanding Shares Owned After Offering |
| HMC Atlas Air, L.L.C.(1) | 7,294,776 | 34.4% | 7,294,776 | 0 | 0 |
| Harbinger Capital Partners Special Situations Fund, L.P.(2) | 644,914 | 3.0% | 644,914 | 0 | 0 |

- (1) The securities owned by HMC Atlas Air, L.L.C., which we refer to as HMC Atlas Air, may also be deemed to be beneficially owned by Harbinger Capital Partners Offshore Manager, L.L.C., the class A shareholder of HMC Atlas Air, HMC Investors, L.L.C., its managing member, which we refer to as HMC Investors, Harbert Management Corporation, which we refer to as HMC, the managing member of HMC Investors, L.L.C., Philip Falcone, a shareholder of HMC and the portfolio manager of HMC Atlas Air, Raymond J. Harbert, a shareholder of HMC, and Michael D. Luce, a shareholder of HMC. Each such person disclaims beneficial ownership of the reported securities except to the extent of his or its pecuniary interest therein, and this report shall not be deemed an admission that such person is the beneficial owner of the securities for purposes of Section 13 or 16 of the Securities Exchange Act of 1934, as amended, or for any other purpose. The persons above may also be deemed to be affiliated with HMC Investments, Inc., a registered broker-dealer.

- (2) The securities owned by Harbinger Capital Partners Special Situations Fund, L.P., which we refer to as Special Situations Fund, may also be deemed to be beneficially owned by Harbinger Capital Partners Special Situations GP, LLC, which we refer to as HCPSS, HMC-New-York, Inc., which we refer to as HMCNY, HMC, Phillip Falcone, Raymond J. Harbert, and Michael D. Luce. HCPSS is the general partner of the Special Situations Fund, L.P. HMCNY is the managing member of HCPSS. HMC wholly owns HMCNY. Phillip Falcone is the portfolio manager of Special Situations Fund and is a shareholder of HMC. Raymond J. Harbert, and Michael D. Luce are shareholders of HMC. Each such person disclaims beneficial ownership of the reported securities except to the extent of his or its pecuniary interest therein, and this report shall not be deemed an admission that such person is the beneficial owner of the securities for purposes of Section 13 or 16 of the Securities Exchange Act of 1934, as amended, or for any other purpose. The persons above may also be deemed to be affiliated with HMC Investments, Inc., a registered broker-dealer.

On February 13, 2007, we entered into a registration rights agreement with our largest stockholder, HMC Atlas Air and its affiliate Harbinger Capital Partners Special Situations Fund, L.P. (together, the Harbinger Entities) as required by our Plan of Reorganization. As of March 12, 2007, the Harbinger Entities beneficially

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owned 7,939,690 shares (or approximately 37.4%) of our common stock, all of which are covered by the registration rights agreement.

Under the registration rights agreement, which was amended on March 12, 2007, we have agreed to file with the SEC, on the earlier of the date on which we become S-3 eligible or April 18, 2007, a shelf registration statement, registering the resale of shares of our common stock that are covered by the agreement and naming the Harbinger Entities as the selling security holders. In addition, at any time after we become eligible to file a registration statement on Form S-3, HMC Atlas Air will have the right to request that we file with the SEC up to two additional registration statements, registering the resale of registrable shares by the Harbinger Entities, subject to certain limitations, including certain black-out rights. We also granted the Harbinger Entities piggyback registration rights with respect to registration statements filed by us for public offerings. The Harbinger Entities have agreed to enter into customary lock-up agreements that may be requested by an underwriter in connection with any offerings of common stock by us.

We have agreed to pay for certain registration expenses incurred in connection with any registration statement filed in accordance with the terms of the registration rights agreement and to reimburse the Harbinger Entities for certain legal expenses. The Harbinger Entities may transfer their rights under the agreement to certain persons that acquire at least 5% of our issued and outstanding common stock, provided that HMC Atlas Air will retain the right (i) to request that we file a registration statement with the SEC and (ii) to amend, terminate or waive any term set forth in the agreement.

PLAN OF DISTRIBUTION

The common stock offered by this prospectus may be sold or distributed from time to time by the selling stockholders directly to one or more purchasers or through brokers, dealers, or underwriters who may receive compensation in the form of discounts, concessions or commissions from the selling stockholders or the purchaser of the common stock, which discounts, concessions or commissions as to particular underwriters, brokers or agents may be in excess of those customary in the type of transactions involved.

The selling stockholders and any such broker-dealers or agents who participate in the distribution of the common stock may be deemed to be underwriters. As a result, any profits on the sale of the common stock by selling stockholders and any discounts, commissions or concessions received by any such broker-dealers or agents might be deemed to be underwriting discounts and commissions under the Securities Act. If the selling stockholders were deemed to be underwriters, the selling stockholders may be subject to certain statutory liabilities as underwriters under the Securities Act.

If the common stock is sold through underwriters or broker-dealers, the selling stockholders will be responsible for underwriting discounts or commissions or agent's commissions.

The sale of the common stock offered by this prospectus may be effected in one or more transactions at:

- fixed prices;
- prevailing market prices at the time of sale;
- prices related to prevailing market prices;
- varying prices determined at the time of sale; or
- negotiated prices.

The sale of the common stock offered by this prospectus may be effected in one or more of the following methods:

on any national securities exchange or quotation service on which the common stock may be listed or quoted at the time of the sale, including The NASDAQ Global Select Market;

transactions involving cross or block trades;

in the over-the counter market;

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through the distribution by any selling stockholder to its partners, members or shareholders;

in other ways not involving market makers or established trading markets, including direct sales to purchasers or sales effected through agents;

in privately negotiated transactions; or

any combination of the foregoing.

In connection with the sales of the common stock or otherwise, the selling stockholders may enter into hedging transactions with broker-dealers. These broker-dealers may in turn engage in short sales of the common stock in the course of hedging their positions. The selling stockholders may also sell the common stock short and deliver the common stock to close out short positions, or loan or pledge the common stock to broker-dealers that in turn may sell the common stock.

In order to comply with the securities laws of certain states, if applicable, the shares may be sold only through registered or licensed brokers or dealers. In addition, in certain states, the shares may not be sold unless they have been registered or qualified for sale in the state or an exemption from the registration or qualification requirement is available and complied with.

We know of no existing arrangements between any selling stockholder, any other stockholder, broker, dealer, underwriter, or agent relating to the sale or distribution of the shares offered by this prospectus. To our knowledge, there are currently no plans, arrangements or understandings between any selling stockholders and any underwriter, broker-dealer or agent regarding the sale of the common stock by the selling stockholders. Selling stockholders may not sell any or all of the common stock offered by them pursuant to this prospectus. In addition, we cannot assure you that any such selling stockholders will not transfer, devise or gift the common stock by other means not described in this prospectus. There can be no assurance that any selling stockholders will sell any or all of the common stock pursuant to this prospectus. In addition, any common stock covered by this prospectus that qualifies for sale pursuant to Rule 144 of the Securities Act may be sold under Rule 144 rather than pursuant to this prospectus.

We will pay all of the expenses incident to the registration, offering, and sale of the shares to the public, other than commissions or discounts of underwriters, broker-dealers, or agents. We have also agreed to indemnify the selling stockholder and related persons against specified liabilities, including liabilities under the Securities Act.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers, and controlling persons, we have been advised that in the opinion of the SEC this indemnification is against public policy as expressed in the Securities Act and is therefore, unenforceable.

We have advised each of the selling stockholders that while it is engaged in a distribution of the shares included in this prospectus it is required to comply with Regulation M promulgated under the Exchange Act. With certain exceptions, Regulation M precludes the selling stockholder, any affiliated purchasers, and any broker-dealer or other person who participates in the distribution from bidding for or purchasing, or attempting to induce any person to bid for or purchase any security which is the subject of the distribution until the entire distribution is complete. Regulation M also prohibits any bids or purchases made in order to stabilize the price of a security in connection with the distribution of that security. All of the foregoing may affect the marketability of the shares offered hereby this prospectus.

This offering will terminate on the date that all shares offered by this prospectus have been sold by the selling stockholders.

LEGAL MATTERS

The legality of our common stock offered hereby will be passed upon for us by Ropes & Gray LLP, Boston, Massachusetts.

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EXPERTS

The consolidated financial statements of Atlas Air Worldwide Holdings, Inc. appearing in Atlas Air Worldwide Holdings, Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2006 (including the schedule appearing therein), and Atlas Air Worldwide Holdings, Inc. management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2006 included therein, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements and management's assessment are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the SEC utilizing a "shelf" registration process, relating to the common stock described in this prospectus. This prospectus does not contain all of the information that is in the registration statement. We omitted certain parts of the registration statement for this prospectus as permitted by the SEC. We refer you to the registration statement and its exhibits for additional information about us and the securities that may be sold by the selling shareholders under this prospectus.

No person has been authorized to give any information or to make any representations other than those contained in this prospectus in connection with the offering made hereby, and if given or made, such information or representations must not be relied upon as having been authorized by us, any selling shareholder or by any other person. Neither the delivery of this prospectus nor any sale made hereunder shall, under any circumstances, create any implication that information herein is correct as of any time subsequent to the date hereof. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any security other than the securities covered by this prospectus, nor does it constitute an offer to or solicitation of any person in any jurisdiction in which such offer or solicitation may not lawfully be made.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

In this prospectus, we incorporate by reference the information we file with the SEC, which means that we can disclose important business, financial and other information to you in this prospectus by referring you to the documents containing this information. The information incorporated by reference is considered to be part of this prospectus, and information that we file with the SEC after the date of this prospectus will automatically update and supersede this information. However, any information contained herein shall modify or supersede information contained in documents we filed with the SEC before the date of this prospectus.

We incorporate by reference in this prospectus the documents listed below and any other documents we file with the SEC in the future (other than, in all cases, the portions of those documents deemed to be "furnished" to, and not "filed" with, the SEC) under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act until the offering of all the securities that may be offered by this prospectus is completed:

our Annual Report on Form 10-K for the year ended December 31, 2006 filed with the SEC on March 15, 2007;

our Current Reports on Form 8-K, filed with the SEC on January 16, 2007, February 16, 2007, February 27, 2007, March 7, 2007, March 19, 2007, March 22, 2007 and April 3, 2007; and

the description of our common stock which is contained in our registration statement on Form 8-A filed with the SEC on June 19, 2001 pursuant to Section 12 of the Exchange Act, including any subsequent amendments or reports filed for the purpose of updating that description.

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WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and special reports, proxy statements and other information with the SEC. Our SEC filings are available over the Internet at the SEC's web site at <http://www.sec.gov>. You may also read and copy any document we file with the SEC at its public reference facility:

Public Reference Room
100 F Street, N.E.
Room 1580
Washington, DC 20549

You may also obtain copies of the documents at prescribed rates by writing to the Public Reference Section of the SEC, 100 F Street, N.E., Room 1580, Washington, DC 20549. Please call 1-800-SEC-0330 for further information on the operations of the public reference facility and copying charges.

We will furnish without charge to each person to whom a copy of this prospectus is delivered, upon written or oral request, a copy of the information that has been incorporated into this prospectus by reference but not delivered with the prospectus (except exhibits, unless they are specifically incorporated into this prospectus by reference). You should direct any requests for copies to:

Atlas Air Worldwide Holdings, Inc.
2000 Westchester Avenue
Purchase, New York 10577
Ph: (914) 701-8000
Attention: Adam R. Kokas, Senior Vice President, General Counsel & Secretary

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