FHEALTH WEALTH CAREER

ACTUARIAL VALUATION FOR FUNDING PURPOSES AS OF OCTOBER 1, 2018

THE AEROSPACE EMPLOYEES' RETIREMENT PLAN

JUNE 2019

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PRINCIPAL VALUATION RESULTS

Mercer has prepared this report to (i) present the results of a valuation of The Aerospace Employees' Retirement Plan as of October 1, 2018, and (ii) provide the plan sponsor with information regarding The Aerospace Employees' Retirement Plan’s minimum required contribution and estimated maximum deductible contribution for the year ending September 30, 2019. Section 2 of this report provides further explanation as to the purposes and limitations of this report.

The Moving Ahead for Progress in the 21st Century Act (MAP-21) stabilized segment interest rates for minimum funding and benefit restrictions for 2012 and later plan years (although plan sponsors could elect to wait until the 2013 plan year to use stabilized rates for benefit restriction purposes or for both minimum funding and benefit restrictions). Segment rate stabilization does not apply to maximum deductible contributions, PBGC variable-rate premiums or 4010 filings. The Highway and Transportation Funding Act of 2014 (HATFA), and later the Bipartisan Budget Act of 2015 (BBA 2015) modified the interest rate corridor introduced by MAP-21 to stabilize segment rates. Section 2 of this report provides a general description of the provisions of these laws.

Effective October 1, 2018, the plan was amended to freeze benefit accruals for AERP2 participants, freeze fixed benefit accruals and increase variable accruals from 1% to 1.3% for AERP1 participants. A detailed description of those changes is described in Section 9.

Summary information about The Aerospace Employees' Retirement Plan is presented below. Please refer to later sections of this report for more detail regarding this information.

	PLAN YEAR BEGINNING			
	OCTOBER 1, 2018		OCTOBER 1, 2017	
Contributions				
Minimum required (before credit balance)[1]	$	43,672,113	$	57,775,714
Minimum required (after available credit balance)		0		0
Estimated maximum deductible[2]		1,642,968,741		1,423,432,941
Actual contributions		N/A		56,690,114
Credit balance				
Carryover balance	$	0	$	0
Prefunding balance		115,509,337		115,504,402
Total	**$**	**115,509,337**	**$**	**115,504,402**
Liabilities based on stabilized interest rates				
Effective interest rate		5.72%		5.90%
Target normal cost	$	16,577,888	$	39,517,183
Funding target		2,295,339,976		2,156,725,117
Liabilities based on nonstabilized interest rates				
Effective interest rate		3.95%		4.12%
Target normal cost	$	16,793,468	$	45,960,945
Funding target		2,517,459,168		2,357,726,509
Assets				
Actuarial value	$	2,150,013,479	$	2,159,117,768
Market value		2,150,013,479		2,159,117,768

[1] Amount determined as of the valuation date. Contributions are adjusted for interest at the effective interest rate between the valuation date and the actual date contributed. The minimum required current year contribution (before credit balance) based on nonstabilized interest rates is $76,136,922.

[2] The maximum deductible shown is determined using nonstabilized rates and a cushion amount equal to 50% of the funding target. A higher deductible limit may apply.

	PLAN YEAR BEGINNING	
	OCTOBER 1, 2018	OCTOBER 1, 2017
Participant data		
Active	3,946	3,684
Inactive with deferred benefits[3]	1,012	969
Inactive with immediate benefits	4,154	4,126
Total	**9,112**	**8,779**

FUNDING TARGET ATTAINMENT PERCENTAGES

The Internal Revenue Code (IRC) defines several funding target attainment percentage (FTAP) measures, which are used for various purposes. These measures and their purpose are defined below and the actual percentages, thresholds, and implications for this plan are shown following these definitions.

The tables shown below use the following acronyms:

- AVA = actuarial value of assets.
- COB = carryover balance.
- FT = funding target (unless otherwise specified, includes modified assumptions, loads, and applicable phase-in for plans deemed at-risk).
- PFB = prefunding balance.

PURPOSE	APPLICABLE YEAR	NUMERATOR	DENOMINATOR
At-risk prong 1	Prior	AVA – COB – PFB	Not-at-risk FT
At-risk prong 2	Prior	AVA – COB – PFB	At-risk FT, before loads
Use of credit balances	Prior	AVA – PFB	Not-at-risk FT
Quarterly contributions	Prior	AVA – COB – PFB	FT
Annual funding notice	Current	AVA – COB – PFB	Not-at-risk FT
PBGC 4010 filing	Current	AVA – COB – PFB	Not-at-risk FT using nonstabilized segment rates
New shortfall base	Current	AVA – PFB[4]	FT
Old shortfall bases	Current	AVA – COB – PFB	FT

[3] Includes active participants with frozen benefits and beneficiaries entitled to future Preretirement Survivor Annuity (PRSA) payments.
[4] The PFB is subtracted only if the plan sponsor elects to use it to satisfy minimum funding requirements.

FTAPs That Have Implications for the 2018 Plan Year

FTAPS	PERCENT	THRESHOLD	IMPLICATION FOR 2018
10/1/2017 FTAPs			
• At-risk prong 1 test	94.75%	80%	Not-at-risk
• At-risk prong 2 test[5]	N/A	70%	
• Use of credit balances	94.75%	80%	Credit balances can be used
• Quarterly contributions	94.75%	100%	Quarterly contributions required
10/1/2018 FTAPs			
• Annual funding notice	88.63%	N/A	Disclosed in annual funding notice
• PBGC 4010 filing[6]	80.81%	80%	Plan will not trigger PBGC 4010 filing
• New shortfall base	88.63%	100%	New shortfall base required
• Old shortfall bases	88.63%	100%	Old shortfall bases continue

FTAPs That Have Implications for the 2019 Plan Year

FTAPS	PERCENT	THRESHOLD	IMPLICATION FOR 2019
10/1/2018 FTAPs			
• At-risk prong 1 test	88.63%	80%	Not-at-risk
• At-risk prong 2 test	N/A	70%	
• Use of credit balances	88.63%	80%	Credit balances can be used
• Quarterly contributions	88.63%	100%	Quarterly contributions required

Estimates of the plan's liabilities are extremely sensitive to assumptions and other variables that are subject to change. Even slight changes in those variables can cause meaningful changes in estimated plan liabilities. Accordingly, we recommend that The Aerospace Employees' Retirement Plan Committee consider the risk inherent in funding The Aerospace Employees' Retirement Plan at exactly or slightly above 80% or another key threshold.

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[5] This test is based on the at-risk liabilities disregarding loads and phase-in. If at-risk liabilities do not affect anything in this report, the at-risk liability will not be calculated.

[6] A PBGC 4010 filing (2016 or later) generally is required if any defined benefit plan in the controlled group had an FTAP less than 80% using nonstabilized rates unless
(i) The aggregate funding shortfall for all plans measured using nonstabilized rates and without subtracting funding balances from assets is not more than $15 million, or
(ii) The total number of participants in all controlled group pension plans is fewer than 500.

A PBGC filing (2016 or later) is triggered by missed contributions or funding waivers exceeding $1 million unless the missed contributions or waivers were previously disclosed to the PBGC under the reportable-event rules.

REVIEW OF RESULTS

The minimum contribution for the 2018/2019 plan year (before credit balance) decreased from the 2017/2018 amount of $57,755,714 to $43,672,113. The net decrease is primarily driven by a decrease in the plan's normal cost under the new plan design and gain on variable liability due to actual unit values lower than expected. This was offset by:

- An increase in the fixed liability due to the decrease in the effective interest rate from 5.90% to 5.72%.
- An increase in fixed and variable liability due to updating the mortality to the new IRS prescribed table.
- Demographic losses after reflecting updated census data.
- Actual fixed and variable asset returns lower than expected. The loss on the variable assets offset the gain on the variable liability.

Based on The Aerospace Corporation's current policy of making the larger of the ERISA minimum required contribution after credit balance application or the CAS reimbursable expense (which ultimately is based on the ERISA interest rate after harmonization is phased in), even if all other actuarial assumptions are realized, the contributions are likely to increase substantially in the future as the stabilized segment rates are phased out. For example, the minimum required contribution based on non-stabilized rates would be $76.4 million, $32.4 million higher than $43.7 million shown above.

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IMPORTANT NOTICES

Mercer has prepared this report exclusively for The Aerospace Employees' Retirement Plan Committee; subject to this limitation, The Aerospace Employees' Retirement Plan Committee may direct us to provide this report to The Aerospace Corporation's auditors in connection with audits of the plan or its sponsoring entities. Mercer is not responsible for use of this report by any other party.

The only purposes of this report are to:

- Present the results of the October 1, 2018 valuation of The Aerospace Employees' Retirement Plan under IRC Section 430.
- Provide the plan sponsor with information regarding The Aerospace Employees' Retirement Plan's minimum required contribution and estimated maximum deductible contribution for the year ending September 30, 2019.
- Determine whether the plan is "at-risk" or "not-at-risk" under IRC Section 430(i) for the 2019 plan year.

This report may not be used for any other purpose; Mercer is not responsible for the consequences of any unauthorized use. Its content may not be modified, incorporated into or used in other material, sold or otherwise provided, in whole or in part, to any other person or entity, without Mercer's permission.

All parts of this report, including any documents incorporated by reference, are integral to understanding and explaining its contents; no part may be taken out of context, used or relied upon without reference to the report as a whole. Unless noted otherwise, this report is based on the participant data, assumptions, methods, and provisions summarized in the report titled *The Aerospace Employees' Retirement Plan Data, Assumptions, Methods, and Provisions for Funding Purposes as of October 1, 2018,* which Mercer issued in May 2019. That document is incorporated herein by reference.

This report is not an adjusted funding target attainment percentage (AFTAP) certification under IRC Section 436.

Decisions about benefit changes, granting new benefits, investment policy, funding policy, benefit security, and/or benefit-related issues should not be made solely on the basis of this valuation, but only after careful consideration of alternative economic, financial, demographic, and societal factors, including financial scenarios that assume future sustained investment losses.

The Aerospace Employees' Retirement Plan's Named Fiduciaries is ultimately responsible for selecting the plan's funding policy, actuarial valuation methods, and asset valuation methods. The policies and methods reflected in this valuation are those that have been so selected and are referenced or described in Section 9. The Aerospace Employees' Retirement Plan Committee is responsible for reviewing and confirming that the policies and methods as referenced or described in Section 9 are accurate and is solely responsible for communicating to Mercer any changes required thereto. Section 9 also references or reflects the assumptions that have been selected for funding purposes as of the valuation date.

This report was prepared in accordance with generally accepted actuarial principles and procedures. Certain actuarial assumptions for funding, including discount rates, mortality tables, and others identified in this report, are prescribed by regulation or statute. Based on the information provided to us, we believe the remaining actuarial assumptions are reasonable for the purposes described in this report (taking into account the experience of the plan and reasonable expectations) and such other assumptions, in combination, represent our best estimate of the plan's anticipated experience with respect to those assumptions. The Aerospace Employees' Retirement Plan Committee is responsible for reviewing the funding assumptions referenced and advising Mercer as to any information it deems worthy of consideration in the determination of funding assumptions.

Funding calculations reflect the requirements of the IRC, ERISA, and related regulations that are effective for the current plan year. This report is based on our understanding of applicable law and regulations as of the valuation date. As you know, Mercer is not a law firm, and this analysis is not intended to be a legal opinion. You should consider securing the advice of legal counsel with respect to any legal matters related to this document and any attachments.

The Aerospace Employees' Retirement Plan Committee should notify Mercer promptly after receipt of the valuation report if it disagrees with anything contained in the valuation report or is aware of any information that would affect the results of the valuation report that has not been communicated to Mercer or incorporated therein. The valuation report will be deemed final and acceptable to The Aerospace Employees' Retirement Plan Committee unless it promptly provides such notice to Mercer.

MAP-21 STABILIZED SEGMENT RATES

MAP-21, enacted July 6, 2012, stabilizes segment rates for plan years beginning in 2012 or later, implementing a corridor that limits each segment interest rate to be within a specified percentage of the 25-year average segment rate. HATFA and BBA 2015 modified the corridor; under current law the corridor is 10% through 2020, widening to 15% in 2021, 20% in 2022, 25% in 2023 and 30% for plan years after 2023. Stabilization does not affect plan sponsors electing to use the full yield curve; however, an election to switch to segment rates could have been made without IRS approval prior to July 6, 2013.

Results shown in this report reflect the MAP-21, HATFA, and BBA 2015 changes to the IRC, as well as IRS guidance issued to date. To the extent that the IRS issues further implementing guidance that affects our calculations, these results may change.

The stabilized rates are only used for certain purposes, including the determination of the plan's minimum required contributions, the FTAP (for certain purposes), and the AFTAP. Stabilized rates cannot be used for determining the maximum deductible contribution, lump sum distributions or other benefit amounts based on Section 417(e) assumptions, PBGC variable-rate premiums, PBGC financial reporting under ERISA Section 4010, or IRC Section 420 asset transfers.

Plans using stabilized rates must include information about MAP-21's effect on required contributions in their annual funding notices for 2012–2023 plan years if (i) the funding target using stabilized segment rates is less than 95% of the funding target using nonstabilized rates; (ii) the funding shortfall determined using nonstabilized segment rates is more than $500,000; and (iii) there were 50 or more participants in all controlled group defined benefit plans on at least one day in the prior plan year. The annual funding notice for these plans must include a table showing the FTAP, the funding shortfall, and the minimum contribution for the current and two preceding plan years, determined with stabilization (for plan years in which stabilization was reflected) and without stabilization. The Department of Labor (DOL) provided guidance on these MAP-21 changes, including a model supplement to the annual funding notice, in final regulation §2520.101-5.

SPONSOR ELECTIONS

The estimates and calculations shown in this report are based on sponsor elections:

- Contribution elections disclosed in Section 3.
- Credit balance maintenance elections disclosed in Section 5.
- Pension Relief Act of 2010 (PRA 2010) funding relief elections disclosed in Sections 6 and 7.
- Funding stabilization, interest rate, and mortality elections referenced or disclosed in Section 9.
- Inclusion or exclusion of insurance contracts and asset methods referenced or disclosed in Section 9.

PROFESSIONAL QUALIFICATIONS

We are available to answer any questions on the material in this report or to provide explanations or further details as appropriate. The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report. We are not aware of any direct or material indirect financial interest or relationship, including investments or other services that could create a conflict of interest, that would impair the objectivity of our work.

	JUNE 25, 2019
Christine Chapman, ASA, MAAA **Enrolled Actuary No. 17-5664**	**Date**
	JUNE 25, 2019
Cindy Jarboe, MAAA **Enrolled Actuary No. 17-6444**	**Date**

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ASSETS

The Treasurer of The Aerospace Corporation, as a Named Fiduciary of The Aerospace Employees' Retirement Plan, is solely responsible for selecting the plan's investment policies, asset allocations and individual investments. The Mercer actuaries who prepared this report have not provided any investment advice to the Treasurer of The Aerospace Corporation, as a Named Fiduciary of The Aerospace Employees' Retirement Plan.

We used financial data submitted by The Aerospace Corporation as of the valuation date without further audit. Customarily, this information would not be verified by a plan's actuary. We have reviewed the information for internal consistency and general reasonableness.

SUMMARY OF ASSETS (MARKET VALUE)

(Thousands of Dollars)		**September 30, 2018**			**September 30, 2017**	
1. Unified Investment Trust						
• Asset						
a. Cash	$	23,731	1.1%	$	17,101	0.8%
b. US stock		767,134	36.3%		762,062	35.9%
c. International stock		258,100	12.2%		284,946	13.4%
d. Fixed Income Securities		979,398	46.3%		974,240	45.9%
e. Real Estate		87,372	4.1%		84,038	4.0%
f. Subtotal		2,115,735	100.0%		2,122,387	100.0%
• Receivables						
g. Accrued interest & dividends		0			0	
h. Accrued employee contributions – SIB		0			0	
i. Accrued employer contributions[7]		31,322			32,265	
j. Subtotal		31,322			32,265	
• Liabilities						
k. Accrued Managers Fees		(606)			(712)	
l. Other liabilities		0			0	
m. Subtotal		(606)			(712)	
2. Net AERP Unified Investment Trust Assets *(1.f. + 1.j. + 1.m.)*	$	2,146,451	99.0%	$	2,153,940	98.9%
3. Alternate Variable Fund		1,017	0.0%		1,312	0.1%
4. Portfolio A Account		2,545	0.1%		3,866	0.2%
5. Total Plan Assets Excluding Optional Contributions[8] (2. + 3. + 4.)	**$**	**2,150,013**	**99.1%**	**$**	**2,159,118**	**99.2%**
6. Optional Contributions Account		19,087	0.9%		17,686	0.8%
7. Total Plan Assets including Optional Contributions *(5. + 6.)*	$	2,169,100	100.0%	$	2,176,804	100.0%

[7] The amount reflects interest adjustment to October 1.

[8] Optional account is not included in the assets or liability for the remainder of the report. This benefit is fully funded and inclusion of the assets and liability generally would not impact the funding calculations.

RECONCILIATION OF ASSETS (MARKET VALUE)

	PLAN YEAR ENDING			
	SEPTEMBER 30, 2018		SEPTEMBER 30, 2017	
Market value (before receivable contributions) at beginning of year	$	2,126,852,653	$	2,007,721,260
Contributions during plan year		57,674,114		49,629,521
Employee SIB contributions		74,973		88,110
Benefits paid during plan year		(149,467,295)		(139,761,291)
Expenses during plan year		(5,476,026)		(5,189,025)
Investment returns for plan year		89,033,324		214,364,078
Market value (before receivable contributions) at end of year	$	2,118,691,743	$	2,126,852,653
Discounted receivable contributions		31,321,736		32,265,115
Market value at end of year	**$**	**2,150,013,479**	**$**	**2,159,117,768**
Actual investment return[9]		4.31%		10.96%

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

The actuarial value of assets is equal to the market value of $2,150,013,479.

ASSET GAIN OR LOSS AND OTHER CHANGES

	RECONCILIATION			
	TO SEPTEMBER 30, 2018		TO SEPTEMBER 30, 2017	
Effective interest rate for prior plan year		5.90%		6.09%
Actuarial value on prior valuation date	$	2,159,117,768	$	2,043,965,070
Interest to end of plan year		127,387,948		124,477,473
Contributions with interest to end of year		56,114,188		44,884,481
Benefit payments and expected expenses, adjusted with interest		(160,089,263)		(149,965,163)
Change in asset method		0		0
Expected actuarial value	$	2,182,530,641	$	2,063,361,861
Actuarial value on current valuation date		2,150,013,479		2,159,117,768
Actuarial asset gain (loss) = actuarial value minus expected actuarial asset value	$	(32,517,162)	$	95,755,907

[9] Actual rate of return, net of investment expenses, which reflects amounts and timing of contributions, benefit payments, administrative expenses, etc. during the plan year.

EMPLOYER CONTRIBUTIONS FOR THE 2017 PLAN YEAR

DATE	APPLIED TO 2017 MINIMUM	AMOUNT CONTRIBUTED	DISCOUNTED VALUE AS OF OCTOBER 1, 2017	RECEIVABLE CONTRIBUTIONS DISCOUNTED TO OCTOBER 1, 2018
6/29/2018	Yes	$ 4,126,000	$ 3,954,074	$
8/1/2018	Yes	4,126,000	3,933,634	
9/4/2018	Yes	4,126,000	3,912,685	
9/27/2018	Yes	12,288,114	11,610,799	
12/3/2018	Yes	8,006,000	7,485,529	7,927,176
1/2/2019	Yes	4,003,000	3,725,172	3,944,957
2/1/2019	Yes	4,003,000	3,707,661	3,926,413
3/1/2019	Yes	4,003,000	3,691,392	3,909,184
4/1/2019	Yes	4,003,000	3,673,464	3,890,198
5/1/2019	Yes	4,003,000	3,656,196	3,871,912
6/3/2019	Yes	4,003,000	3,637,296	3,851,896
Total		**$ 56,690,114**	**$ 52,987,902**	**$ 31,321,736**

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LIABILITIES

AT-RISK DETERMINATION

A plan is at risk if the controlled group had more than 500 defined benefit plan participants on any day during the prior plan year, the prior year FTAP based on not-at-risk liabilities is less than 80% and the prior year FTAP based on at-risk liabilities is less than 70%.

PLAN YEAR BEGINNING	MORE THAN 500 PARTICIPANTS IN CONTROLLED GROUP	PRIOR YEAR FTAP BASED ON: NOT-AT-RISK FUNDING TARGET	PRIOR YEAR FTAP BASED ON: AT-RISK FUNDING TARGET	PLAN AT-RISK
10/1/2014	Yes	93.63%	N/A	No
10/1/2015	Yes	96.48%	N/A	No
10/1/2016	Yes	92.64%	N/A	No
10/1/2017	Yes	94.64%	N/A	No
10/1/2018	Yes	94.75%	N/A	No
Consecutive years at-risk (up to 5)				0
% of at-risk liabilities — 20% times consecutive years at-risk				0.00%
At-risk in 2 of prior 4 plan years — subject to at-risk expense loads				No

At-risk status has the following consequences:

- The funding target, target normal cost, maximum funding target, and PBGC funding target may be increased to reflect at-risk assumptions.
- The funding target and target normal cost may be increased to reflect required expense loads.
- If the plan sponsor has one or more at-risk plans, it is prohibited from funding any nonqualified deferred compensation plan for select executives.
- Funding levels that result in an at-risk status will likely have other consequences (for example, prohibition from using credit balance to satisfy minimum funding requirements, etc.).

FUNDING TARGET AND TARGET NORMAL COST

	PLAN YEAR BEGINNING	
	OCTOBER 1, 2018	OCTOBER 1, 2017
Funding target		
• Benefit in pay status	$ 1,427,493,188	$ 1,313,455,437
• Vested deferred benefits	117,677,113	105,635,907
• Vested actives	743,424,804	726,118,677
• Nonvested actives	6,744,871	11,515,096
• **Total**	$ 2,295,339,976	$ 2,156,725,117
Target normal cost		
• Benefit accrual	$ 10,813,572	$ 33,997,597
• Expected expenses	5,764,316	5,519,586
• **Total**	$ 16,577,888	$ 39,517,183
Results based on nonstabilized segment rates		
• Funding target	$ 2,517,459,168	$ 2,357,726,509
• Target normal cost (adjusted for expenses)	$ 16,793,468	$ 45,960,945

FUNDING TARGET GAIN OR LOSS[10] AND OTHER CHANGES

	RECONCILIATION	
	TO CURRENT YEAR	TO PRIOR YEAR
Effective interest rate for prior plan year	5.90%	6.09%
Funding target on prior valuation date	$ 2,156,725,117	$ 2,035,774,919
Target normal cost	39,517,183	39,269,174
Interest to end of year	129,578,296	126,370,185
Benefit payments and expected expenses, adjusted with interest	(160,089,263)	(149,965,163)
Change in mortality and discount rates	125,889,683[11]	23,088,601
Other assumption changes	0	0
Change in methods	0	0
Change in plan provisions	(2,685,365)	0
Expected funding target	$ 2,288,935,651	$ 2,074,537,716
Actual funding target	2,295,339,976	2,156,725,117
Funding target gain (loss) = expected minus actual funding target	$ (6,404,325)	$ (82,187,401)

Much of the $82 million liability loss in prior year was attributable to the variable liability increase that occurred when the assets backing the variable benefit returned more than the hurdle rate. The funded status for the variable portion of the benefit was mostly unchanged.

10 Gain or loss based on not-at-risk funding target and not-at-risk target normal cost.

11 Includes $106.5 million in mortality change and $19.4 million in discount rate change.

RECOMMENDED TRANSFER - ALTERNATE VARIABLE AND PORTFOLIA A FUNDS

	RECONCILIATION			
	SEPTEMBER 30, 2018		SEPTEMBER 30, 2017	
(Thousands of dollars)				
Alternate Variable fund				
1. Number of participants		59		66
2. Accrued actuarial liability	$	1,421	$	1,646
3. Market value of assets		1,017		1,312
4. Recommended transfer from Variable fund to Alternate Variable fund (2. – 3.)	**$**	**404**	**$**	**334**
Portfolio A fund				
1. Number of participants		144		160
2. Accrued actuarial liability	$	8,038	$	8,659
3. Market value of assets		2,545		3,866
4. Recommended transfer from Variable fund to Portfolio A fund (2. – 3.)	**$**	**5,493**	**$**	**4,793**

NORMAL COST

The components of the Normal Cost are shown below:

	PLAN YEAR BEGINNING OCTOBER 1, 2018			PLAN YEAR BEGINNING OCTOBER 1, 2017		
(Thousands of dollars)	Fixed Benefits	Variable Benefits	Total	Fixed Benefits	Variable Benefits	Total
1. Normal Cost	$ 0	$ 10,814	$ 10,814	$ 15,565	$ 18,433	$ 33,998
2. Administrative expenses	5,666	98	5,764	5,421	98	5,519
3. Total Normal Cost *(1. + 2.)*	**$ 5,666**	**$ 10,912**	**$ 16,578**	**$ 20,986**	**$ 18,531**	**$ 39,517**
Effective interest rate		5.72%			5.90%	
Mortality table		2018 PPA (RP-2014 / MP-2016)			2017 PPA (RP-2000 / Scale AA)	

UNFUNDED LIABILITY

	SEPTEMBER 30, 2018			SEPTEMBER 30, 2017		
(Thousands of dollars)	**Fixed Benefits**	**Variable Benefits**	**Total**	**Fixed Benefits**	**Variable Benefits**	**Total**
1. Accrued actuarial liability						
Active participants	$ 324,151	$ 426,019	$ 750,170	$ 309,877	$ 427,757	$ 737,634
Inactive participants with deferred benefits[12]	41,659	76,018	117,677	35,528	70,108	105,636
Inactive participants receiving benefits[13]	538,549	888,944	1,427,493	481,671	831,784	1,313,455
Total accrued actuarial liability	$ 904,359	$ 1,390,981	$ 2,295,340	$ 827,076	$ 1,329,649	$ 2,156,725
2. Market value of assets	742,397	1,407,616	2,150,013	735,901	1,423,217	2,159,118
3. Unfunded accrued actuarial liability (surplus)			**$ 145,327**			**$ (2,393)**
Effective interest rate		5.72%			5.90%	
Mortality table		2018 PPA (RP-2014 / MP-2016))			2017 PPA (RP-2000 / Scale AA)	

[12] Includes active participants with frozen benefits and beneficiaries entitled to future PRSA payments.

[13] Includes benefits to alternate payees of active and terminated vested participants who are in pay status.

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CARRYOVER AND PREFUNDING CREDIT BALANCES

	CARRYOVER BALANCE	PREFUNDING BALANCE
Balance as of October 1, 2017	$ 0	$ 115,504,402
Portion applied in prior year	(0)	(53,323,971)
Interest at prior year investment return of 4.31%	0	2,679,977
Amount remaining as of October 1, 2018	$ 0	$ 64,860,408
Prior year excess contributions		
Discounted contributions allocated toward minimum required		$ 52,987,902
Minimum funding requirement (after applied credits)		(4,431,743)
Interest-adjusted excess contributions = discounted contributions minus minimum funding requirement (after applied credits)		$ 48,556,159
Interest to end of plan year on excess contributions not attributed to credit balance use at prior year effective interest rate of 5.90%		0
Interest to end of plan year on excess contributions attributed to credit balance use at prior year investment return of 4.31%		2,092,770
Total available to add to prefunding balance		$ 50,648,929
Portion added to prefunding balance		50,648,929
Reduction in balances due to election or deemed election effective October 1, 2018	**$ 0**	**$** 0
Balance as of October 1, 2018	**$ 0**	**$** 115,509,337
Credit balance available to offset minimum	**$ 0**	**$ 115,509,337**

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MINIMUM REQUIRED CONTRIBUTION

The minimum required contribution under IRC Section 430 is equal to the target normal cost plus the shortfall amortization charge (including any installment acceleration amount) plus the waiver amortization charge. The target normal cost is based on the increase in pension benefits during the current plan year plus expected expenses while the shortfall and waiver amortizations are based on the funding shortfall and amount of contribution waived, respectively.

	PLAN YEAR BEGINNING	
	OCTOBER 1, 2018	OCTOBER 1, 2017
Target normal cost minus excess assets	$ 16,577,888	$ 39,517,183
Shortfall amortization charge	27,094,225	18,238,531
Waiver amortization charge	N/A	N/A
Minimum required contribution (before available credit balance)	**$ 43,672,113**	**$ 57,755,714**
Credit balance available to offset minimum	(115,509,337)	(115,504,402)
Minimum required contribution (after available credit balance)	**$ 0**	**$ 0**
Effective interest rate	5.72%	5.90%

Minimum required contributions are determined as of the valuation date. Employer contributions are adjusted for interest at the effective interest rate between the valuation date and the actual date paid. The amounts shown above have **not** been adjusted for interest.

PRA 2010 PENSION FUNDING RELIEF

The Aerospace Employees' Retirement Plan Committee elected PRA 2010 funding relief for the plan years beginning in 2009 and 2010, amortizing the funding shortfall for those two years over 15 years instead of the usual 7 years. If excess compensation or extraordinary dividends are paid or stock redemptions occur during the restriction period (plan years beginning in 2010 through 2014), the minimum required contribution was increased by an installment acceleration adjustment. The Aerospace Employees' Retirement Plan Committee is fully responsible for compliance with this requirement and notifying Mercer of any installment acceleration amounts. The restriction period ended after the 2014 plan year.

QUARTERLY CONTRIBUTIONS

Plans with funding shortfalls are subject to quarterly contribution requirements in the following plan year. Each quarterly contribution amount is 25% of the lesser of (i) the prior year's minimum required contribution or (ii) 90% of the current year's minimum required contribution. The minimum required contribution used to determine quarterly contribution amounts excludes installment acceleration amounts.

Quarterly contribution amount for the current plan year	$	9,826,225
Preliminary quarterly contribution amount for next year	$	10,918,028

These contributions are due 3½ months, 6½ months, 9½ months, and 12½ months after the beginning of the plan year. The remaining minimum required contribution is due 8½ months after the end of the plan year.

USE OF CREDIT BALANCE

The Aerospace Employees' Retirement Plan Committee can elect to apply some or all of the available credit balance (shown above) toward the minimum required contribution. However, the 2018 minimum required amounts before and after credit balance shown in this report were determined based on the fact that The Aerospace Employees' Retirement Plan Committee has elected to apply some of the prefunding balance.

Under final IRS regulations, irrevocable written elections to use specific amounts must be provided by the quarterly installment or minimum contribution due date to avoid a missed contribution. In lieu of individual elections, plan sponsors can put a standing election in place to use credit balance to meet quarterly requirements. The Aerospace Employees' Retirement Plan Committee has signed a standing election to use credit balance for quarterly requirements to the extent such requirements are not met with cash.

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SHORTFALL AND WAIVER AMORTIZATION BASES

AMORTIZATION EXEMPTION

If the plan does not have a funding shortfall, all shortfall and waiver amortization bases are deemed fully amortized.

	PLAN YEAR BEGINNING			
	OCTOBER 1, 2018		OCTOBER 1, 2017	
Funding target	$	2,295,339,976	$	2,156,725,117
AVA minus COB and PFB		(2,034,504,142)		(2,043,613,366)
Funding shortfall amount, not less than $0	$	260,835,834	$	113,111,751
Are all bases deemed fully amortized?		No		No

NEW SHORTFALL BASE EXEMPTION

Plans are exempt from setting up a new shortfall amortization charge if the plan is 100% funded.

	PLAN YEAR BEGINNING			
	OCTOBER 1, 2018		OCTOBER 1, 2017	
Assets				
• Actuarial value of assets	$	2,150,013,479	$	2,159,117,768
• PFB		115,509,337		115,504,402
• Election to use some PFB for current year		Yes		Yes
• Assets = AVA – PFB (if used)		2,034,504,142		2,043,613,366
Funding target	$	2,295,339,976	$	2,156,725,117
Is plan exempt from new shortfall base?		No		No

NEW SHORTFALL AMORTIZATION BASE

If a new shortfall base is required, the base equals the difference between the funding target and the sum of the net assets, unamortized prior-year shortfall bases, and unamortized prior-year waiver bases. The unamortized prior-year shortfall bases, the unamortized waiver bases, and the new base amortization are determined based on the current year's discount rates.

	PLAN YEAR BEGINNING	
	OCTOBER 1, 2018	OCTOBER 1, 2017
Funding target	$ 2,295,339,976	$ 2,156,725,117
AVA minus COB and PFB	(2,034,504,142)	(2,043,613,366)
Unamortized prior-year shortfall bases	(101,257,381)	(100,170,540)
New base amount (unless exempt)	$ 159,578,453	$ 12,941,211
New base amortization	26,051,158	2,125,098

SHORTFALL AMORTIZATION CHARGE

The total shortfall amortization charge is the sum of the individual shortfall amortization installments for each plan year since the IRC Section 430 changes made by the Pension Protection Act of 2006 (PPA) took effect for the plan. Although an individual shortfall amortization installment can be negative, the combined shortfall amortization charge cannot be less than $0.

SHORTFALL BASES			
Year established	Outstanding balance	Years remaining	2017 Installment
2009	$ 98,087,600	5.95	$ 18,281,583
2010	35,447,656	6.85	5,894,501
2013	(52,284,474)	2.00	(26,644,757)
2014	(21,469,381)	3.00	(7,433,327)
2015	48,034,777	4.00	12,709,933
2016	(18,036,791)	5.00	(3,889,964)
2017	11,477,994	6.00	2,125,098
2018	159,578,453	7.00	26,051,158
Total	**$ 260,835,834**		**$ 27,094,225**

The Aerospace Employees' Retirement Plan Committee elected to use funding relief for both the 2009 and 2010 plan years – that is, the shortfall bases created in those plan years are amortized over 15 years rather than 7 years. During 2011, 2012, 2013, and 2014, The Aerospace Corporation paid excess compensation, which resulted in $43,000, $114,240, $170,436, and $136,122 installment acceleration amount (IAA) charges respectively for each amortization base. No excess compensation was paid in 2010. These IAA charges increase the minimum required contribution and shorten the remaining amortization period of the 2009 and 2010 bases. The restriction period ended after the 2014 plan year and there are no further IAAs.

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ESTIMATED MAXIMUM DEDUCTIBLE CONTRIBUTION

Although The Aerospace Corporation is not a taxable plan sponsor, we present the estimated maximum tax deductible contribution as an additional benchmark for funding the plan.

The maximum deductible contribution is the greatest of (a) the minimum required contribution, (b) the funding target plus target normal cost plus cushion amount — determined using nonstabilized discount rates — minus the actuarial value of assets, and (c) the plan's at-risk funding target plus at-risk target normal cost — again determined using nonstabilized discount rates — minus the actuarial value of assets (if the plan is not-at-risk). We present only (b) below because neither (a) nor (c) are expected to result in a greater maximum deductible contribution.

	PLAN YEAR BEGINNING	
	OCTOBER 1, 2018	OCTOBER 1, 2017
Funding target	$ 2,517,459,168	$ 2,357,726,509
Target normal cost	16,793,468	45,960,945
50% cushion amount	1,258,729,584	1,178,863,255
Actuarial value of assets[14]	(2,150,013,479)	(2,159,117,768)
Estimated maximum deductible amount	**$ 1,642,968,741**	**$ 1,423,432,941**

The maximum deductible contribution applies to tax-paying entities. Our understanding is that The Aerospace Corporation is a non-profit organization and that the maximum deductible contribution may not apply.

The maximum deductible shown is based on nonstabilized segment rates and a cushion amount equal to 50% of the funding target. A higher deductible limit may apply based on the increase in funding target, if any, from using projected pay or projected scheduled benefit increases. Accordingly, we have characterized the amount shown in this report as an estimate.

The combined plan deduction limits do not apply because this plan is covered by the PBGC.

[14] This amount has not been adjusted for contributions made but not yet deducted or for contributions not included in prior plan year but previously deducted.

For the following reasons, we recommend the company review with its tax counsel and advisors the tax consequence of any contribution to be made:

- The estimates shown above are based on IRC Section 404(o), which was added by PPA. The IRS has not yet issued any regulations providing guidance on how to apply this section; therefore, the deductible amount shown above is as of the beginning of the plan year (that is, we did not increase that amount with interest to the fiscal year-end).

- Deductibility can be affected by factors not considered in our valuation. For example, we have not reflected the difference (if any) between the company's fiscal year and the plan year.

- State law may differ from federal tax law and the amounts determined in this report may not be deductible in all jurisdictions. Subject to the advice of tax counsel, the amounts listed above may be used to determine the employer's deductible contribution limit under federal law.

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DATA, ASSUMPTIONS, METHODS, AND PROVISIONS

This report is based on the participant data, assumptions, methods, and provisions summarized in the report titled *The Aerospace Employees' Retirement Plan Data, Assumptions, Methods, and Provisions for Funding Purposes as of October 1, 2018*, which Mercer issued May 2019.

A copy of the above-named report is available from Mercer upon request by an authorized user of this report.

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