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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

T-AO 205 JOHN LEWIS CLASS FLEET REPLENISHMENT OILER (T-AO 205 CLASS)

December 2021 Selected Acquisition Report (SAR)



DECEMBER 31, 2021
DEPARTMENT OF THE NAVY

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost
PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)

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Program Manager

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Mission and Description

The JOHN LEWIS (T-AO 205) Class Fleet Replenishment Oiler program will recapitalize the T-AO 187 Class for a total of 20 ships. The United States requires military forces that can operate for long periods of time around the globe. The Navy can provide sustained military presence and operations far from the Continental United States (CONUS) with little or no reliance on host governments for basing and logistics in the immediate vicinity of operations. Such operations rely primarily on the ships of the Navy's Combat Logistics Force (CLF) for the resupply of fuel, food, ammunition, repair parts, and other consumables during underway (at-sea) replenishment events. A critical supply item provided by the CLF, in both peace and war, is fuel to power the ships and aircraft of the Fleet. All of the Navy's CLF ships can provide fuel to Navy ships. However, the CLF's 15 T-AO 187 Class, because of their capacity and their numbers, are the backbone of the fuel delivery system. The existing CLF consists of 29 ships: two Fast Combat Support Ships (T-AOE 6 Class) built primarily to service aircraft carriers and their accompanying surface combatants; 12 Dry Cargo/Ammunition Ships (T-AKE 1 Class) built to replace the Navy's single product ammunition ships and dry cargo ships; and 15 T-AO 187 Class ships. The T-AO 187s represent about half of the number of CLF ships, but account for 75 percent of the CLF's at-sea refueling capacity.

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Executive Summary

Program Highlights Since Last Report

The Lead Hull (T-AO 205) launched in January 2021, is now 99% complete and demonstrates exceptional design maturity with 95% design completion at the start of construction. Builders Sea Trials commenced on February 1, 2022, with delivery planned for May 2022. The second ship, T-AO 206, was launched in November 2021 and is now 91% complete. Start of construction for the third ship, T-AO 207, was December 2020. It is now 57% complete. Start of construction for the fourth ship, T-AO 208, was May 2021. It is 8% complete.

FY 2020 Full Funding for the fifth ship, T-AO 209, and for the sixth ship, T-AO 210, was awarded on March 12, 2020. On August 6, 2020, \$20M FY 2016 Special Transfer Authority was obligated against the Lead Hull to cover overrun.

PB 2022 requested one ship in FY 2022 that was previously a gap year, and PB 2023 requests one ship in FY 2023, two ships in FY24 and one ship in FY25 and out. In FY 2022, the Navy plans to enter into Sole Source negotiations with National Steel and Shipbuilding Company (NASSCO) for the FY 2022 and FY 2023 ships. In August 2021, a Sole Source Request for Proposal was issued to General Dynamics, NASSCO, for the Detailed Design and Construction (DD&C) of T-AO 211 & 212, with an option of T-AO 213, the seventh, eighth and ninth ships respectively. A cost proposal for T-AO 211 & 212 DD&C was received in October 2021 and is currently being evaluated.

FY 2022 and PB 2023 include Cost to Complete (CTC) for T-AO 205 through 210 to fund the share line above target, Economic Price Adjustment (EPA) and Government Furnished Equipment (GFE). T-AO 205 and 206 are expected to reach ceiling and the remaining hulls (T-AO 207-210) will be above target but below ceiling.

The FY 2021 Consolidated Appropriations Act included +\$20M Shipbuilding and Conversion, Navy (SCN) affordability initiatives, and FY 2020 Advanced Procurement Rescission -\$73M since FY 2021 was a gap year. The FY 2021 Consolidated Appropriations Act also included a \$3.1M Research, Development, Test and Evaluation (RDT&E) mark for Test & Evaluation for T-AO 205 schedule delays. The FY 2022 Consolidated Appropriations Act included \$775.6M for an additional T-AO and \$20M SCN for affordability initiatives.

In November 2021, a Program Deviation Memorandum was submitted to document the T-AO 205 schedule breach, thus impacting Initial Operational Test & Evaluation and IOC. The delay is due to the following impacts: 1) the July 2018 Graving Dock incident required reschedule of yard-wide production efforts, 2) late delivery of subcontractor outfitting, main engines, and other components, 3) first of class complexity issues, including inefficiencies resulting in re-work and an unplanned dry-docking in March 2021 to repair a leaking shaft seal system, and 4) Coronavirus Disease 2019 (COVID-19) pandemic related impacts to workforce availability and productivity, as well as vendor delivery schedules. The T-AO 205 last phase of developmental testing is planned for May 2022, following delivery of the lead ship. Commencement of Operational Testing is planned for November 2022.

In addition to schedule delays noted above, the Government is finalizing a response to the Shipbuilder's letter for an Over Threshold Schedule request to adjust the baselines for T-AO 207-210 by four to six months.

Cost increases for all hulls are due to material costs and overhead, as well as higher than expected labor hours. Supply chain issues and commodity market (e.g., steel, copper) surge are the primary contributors

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to increased material costs. Overhead costs increased due to declining Government and commercial work. Schedule delays also had an impact.

There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
MAY 2012	At the Navy Gate 2 Review, held May 2, 2012, the Navy approved development of a Capability Development Document (CDD) and recommended a class of 17 ships based on a new design T-AO 205 Class with capabilities similar to the T-AO 187 Class.
OCT 2012	On October 10, 2012, the Navy Gate 3 Review approved the T-AO 205 Class threshold capabilities.
APR 2013	An Acquisition Decision Memorandum was signed by USD (AT&L) on April 5, 2013, which approved T-AO 205 Program entry at Milestone B.
JUN 2015	The CDD was approved and validated by the Chief of Naval Operations and Joint Requirements Oversight Council (JROC) on June 16, 2015
JUL 2015	Per a USD(AT&L) Memorandum dated June 18, 2015, the Navy received approval to release the Request for Proposals and pursue a combined Milestone B/C.
SEP 2015	Per a USD(AT&L) Memorandum dated September 11, 2015, the MDA for the T-AO 205 program will be the Assistant Secretary of the Navy (Research, Development, and Acquisition) ASN (RD&A).
JUN 2016	The Navy awarded a competitive, block buy contract for six ships to General Dynamics, National Steel and Shipbuilding Company (GD NASSCO) on June 30, 2016. The Lead Ship, T-AO 205 was awarded on June 30, 2016.
JUN 2017	FY 2017 Advance Procurement (AP) for the second ship, T-AO 206 awarded on June 5, 2017. September 2017 The T-AO 205 Class combined Milestone B/C approval ADM was signed by ASN (RDA) on September 22, 2017.
DEC 2017	FY 2018 AP for the third ship, T-AO 207 was awarded on December 5, 2017.
MAR 2018	FY 2018 Full Funding for the second ship, T-AO 206 awarded on March 28, 2018.
MAY 2018	Per a Navy (Research, Development, and Acquisition) ASN (RD&A) ADM dated May 16, 2018, add two ships to existing contract and increase the LRIP quantity from 6 to 8 ships.
SEP 2018	Start of construction for T-AO 205 commenced September 19, 2018
DEC 2018	FY 2019 Full Funding for the third and fourth ships, T-AO 207 and T-AO 208, and FY 2019 AP for the fifth ship, T-AO 209, was awarded on December 27, 2018.
DEC 2019	Start of construction for T-AO 206 commenced December 9, 2019
FEB 2020	Keel laying for T-AO 206 was held on February 20, 2020.
MAR 2020	FY2020 Full Funding for the fifth ship, T-AO 209 and for the sixth ship, T-AO 210 was awarded on March 12, 2020 COVID-19 impacts began in March 2020, resulting in approximately 15% average reduction of workforce on-site and delays in ship construction.

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DEC 2020	Start of construction for T-AO 207 commenced December 8, 2020.
JAN 2021	T-AO 205 launch occurred on January 12, 2021.
MAY 2021	Start of construction for T-AO 208 commenced May 21, 2021
OCT 2021	GD NASSCO submitted cost proposal for the Detailed Design and Construction (DD&C) of T-AO 211 & T-AO 212.

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Schedule

Schedule Events

Schedule Events					
Events	Development APB Objective	Current APB Development Objective/Threshold		Current Estimate/Actual	Deviation
Detail Design and Construction (DD&C) Award	JUN 2016	JUN 2016	DEC 2016	06/30/2016	N/A
Milestone B	SEP 2017	SEP 2017	MAR 2018	9/22/2017	N/A
Milestone C	SEP 2017	SEP 2017	MAR 2018	9/22/2017	N/A
Delivery - Hull 16-01 (T-AO 205)	NOV 2020	JUN 2021	DEC 2021	MAY 2022	Y ¹
IOT&E Complete – Hull 16-01 (T-AO 205)	MAY 2021	JUN 2022	DEC 2022	MAY 2023	Y ²
IOC – Hull 16-01 (T-AO 205)	JUL 2021	AUG 2022	FEB 2023	JUL 2023	Y ³
FOC	JAN 2036	JAN 2040	JAN 2040	JAN 2040	N

Acronyms:

IOT&E – Initial Operational Test and Evaluation

Schedule Notes:

The Current Estimate for the IOC and IOT&E align with the June 16, 2015, approved Capability Development Document (CDD) which states the IOC will be achieved 14 months after delivery and when the first ship completes Post Delivery Test & Trials, IOT&E, Final Contract Trials, and Post Shakedown Availability. The current PM estimate for these dates is consistent with previous T-Ship actual post-delivery trials durations and IOC.

The IOC objective date reflects the CDD objective date of delivery plus 8 months.

The FY 2016 Lead Hull delivery date is now May 2022 and Obligation Work Limiting Date (OWLD) is July 2023. The Lead Hull initially slipped due to late delivery of main engines and reduction gears and has been further impacted by the late delivery of pipe spools, vent, and metal outfitting material. The reschedule of yard-wide production efforts due to the Graving Dock incident also compounded the delivery delays.

Planned delivery and OWLD for T-AO 206-210:

T-AO 206: Delivery: October 2022; OWLD: December 2023

T-AO 207: Delivery: August 2023; OWLD: October 2024

T-AO 208: Delivery: March 2024; OWLD: May 2025

T-AO 209: Delivery: April 2025 OWLD: June 2026

T-AO 210: Delivery September 2025; OWLD: November 2026

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Deviation Explanations:

1. Delivery: In November 2021, a Program Deviation Memorandum was submitted to document the Lead Hull schedule breach, thus impacting IOT&E and IOC. The delay is due to the following impacts: 1) the July 2018 Graving Dock incident required reschedule of yard-wide production efforts, 2) late delivery of subcontractor outfitting, main engines, and other components, 3) first of class complexity issues, including inefficiencies resulting in re-work and an unplanned dry-docking in March 2021 to repair a leaking shaft seal system, and 4) COVID-19 pandemic related impacts to workforce availability and productivity as well as vendor delivery schedules.
2. IOT&E Completion: See deviation explanation No. 1.
3. IOC: See deviation explanation No. 1.

Significant Schedule

Significant Schedule Risks	
Current Estimate (December 2021)	
1.	If NASSCO does not obtain additional commercial and/or Navy work, then workforce ramping may result in a less efficient construction schedule. Mitigation: Meet regularly with NASSCO and other Government Program Offices to coordinate schedules.
2.	If the Government and the shipbuilder cannot reach an affordable price for T-AO 211 and T-AO 212, then a production gap could occur. Mitigation: Conduct position clarification exchanges to prepare for negotiations.
3.	If hiring challenges and green labor continues, then there will be yard wide risks to NASSCO's ability to meet schedule. Delays across the shipyard will have a cascading impact to T-AO schedules Driver: COVID-19 impact affecting US job marketplace. Mitigation: Joint (NASSCO, T-AO/ESB) schedule working group to monitor yard wide schedule risks and evaluate if current plan is executable.

Performance

Performance Characteristics					
Development APB Objective	Current APB Development Objective/Threshold		Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	Deviation
Fueling at Sea					
Cargo Fuel Capacity: 156,000 barrels	Cargo Fuel Capacity: 156,000 barrels	(T=O) Cargo Fuel Capacity: 156,000 barrels	TBD	Cargo Fuel Capacity: 162,164 barrels	N
Force Protection					
Protect Personnel: Permanent crew-served Weapon mounts and ready service lockers for use by on-watch EST Secure stowage for weapons and ammunitions when ship's force security teams and ESTs are not on watch PPE as routinely provided to MSC crews to include Force Protection and CBR PPE for a minimum of 125 personnel	Protect Personnel: Permanent crew-served Weapon mounts and ready service lockers for use by on-watch EST Secure stowage for weapons and ammunitions when ship's force security teams and ESTs are not on watch PPE as routinely provided to MSC crews to include Force Protection and CBR PPE for a minimum of 125 personnel	(T=O) Protect Personnel: Permanent crew-served Weapon mounts and ready service lockers for use by on-watch EST Secure stowage for weapons and ammunitions when ship's force security teams and ESTs are not on watch PPE as routinely provided to MSC crews to include Force Protection and CBR PPE for a minimum of 125 personnel	TBD	Protect Personnel: Permanent crew-served Weapon mounts and ready service lockers for use by on-watch EST Secure stowage for weapons and ammunitions when ship's force security teams and ESTs are not on watch PPE as routinely provided to MSC crews to include Force Protection and CBR PPE for a minimum of 125 personnel	N
Survivability					
Vulnerability: Built to commercial standards and meet OPNAVINST 9070.1. The ship will comply with ABS SVR Classification and USCG certification.	Vulnerability: Built to commercial standards and meet OPNAVINST 9070.1. The ship will comply with ABS SVR Classification and USCG certification. Vessel will be double-hulled	(T=O) Vulnerability: Built to commercial standards and meet OPNAVINST 9070.1. The ship will comply with ABS SVR Classification and USCG certification. Vessel will be double-hulled	TBD	Vulnerability: Built to commercial standards and meet OPNAVINST 9070.1. The ship will comply with ABS SVR Classification and USCG certification.	N

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Performance Characteristics					
Development APB Objective	Current APB Development Objective/Threshold		Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	Deviation
Vessel will be double-hulled				Vessel will be double-hulled	
Sustainment					
Materiel Availability: 0.74 (Note: Equivalent to 270 Days RFT per year) Operational Availability: 0.95 (Note: Operational AOCF resulting in C4 CASREPS)	Materiel Availability: 0.74 (Note: Equivalent to 270 Days RFT per year) Operational Availability: 0.95 (Note: Operational AOCF resulting in C4)	(T=O) Materiel Availability: 0.74 (Note: Equivalent to 270 Days RFT per year) Operational Availability: 0.95 (Note: Operational AOCF resulting in C4)	TBD	Materiel Availability: 0.74 (Note: Equivalent to 270 Days RFT per year) Operational Availability: 0.95 (Note: Operational AOCF resulting in C4 CASREPS)	N
Net-Ready					
Perform Logistics and Combat Services: 0.999 Supply Operational Forces: 0.999 Synchronize Supply of Fuel in Joint Operations Area: 0.999 Transmit/Receive Bandwidth between ship and external network: Unclassified (NIPR), Classified (SIPR), and Coalition Network 3.36 Mbps Situational Information; Movement Procedures: Moderate (1-10 sec.) Distribution Data; Transport	Perform Logistics and Combat Services: 0.999 Supply Operational Forces: 0.999 Synchronize Supply of Fuel in Joint Operations Area: 0.999 Transmit/Receive Bandwidth between ship and external network: Unclassified (NIPR), Classified (SIPR), and Coalition Network 3.36 Mbps Situational Information; Movement Procedures: Moderate (1-10 sec.) Distribution Data; Transport Data Coordination	(T=O) Perform Logistics and Combat Services: 0.999 Supply Operational Forces: 0.999 Synchronize Supply of Fuel in Joint Operations Area: 0.999 Transmit/Receive Bandwidth between ship and external network: Unclassified (NIPR), Classified (SIPR), and Coalition Network 3.36 Mbps Situational Information; Movement Procedures: Moderate (1-10 sec.) Distribution Data; Transport Data Coordination	TBD	Perform Logistics and Combat Services: 0.999 Supply Operational Forces: 0.999 Synchronize Supply of Fuel in Joint Operations Area: 0.999 Transmit/Receive Bandwidth between ship and external network: Unclassified (NIPR), Classified (SIPR), and Coalition Network 3.36 Mbps Situational Information; Movement Procedures: Moderate (1-10 sec.) Distribution Data; Transport	N

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Performance Characteristics					
Development APB Objective	Current APB Development Objective/Threshold		Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	Deviation
Data Coordination Data; Delivery Information: Moderate (1-10 sec.)	Data; Delivery Information: Moderate (1-10 sec.)	Delivery Information: Moderate (1-10 sec.)		Data Coordination Data; Delivery Information: Moderate (1-10 sec.)	
Energy					
Unrefueled range of 6,000 Nautical Miles at 20 knots while consuming no more than 14,000 barrels of fuel	Unrefueled range of 6,000 Nautical Miles at 20 knots while consuming no more than 14,000 barrels of fuel	(T=O) Unrefueled range of 6,000 Nautical Miles at 20 knots while consuming no more than 14,000 barrels of fuel	TBD	Unrefueled range of 6,000 Nautical Miles at 20 knots while consuming no more than 14,000 barrels of fuel	N
Training					
Crew familiarization training on ship-specific systems and equipment to be provided by Contractor MSC will provide training based on CIVMAR) Competency Matrices. Training will occur at MSC-sponsored facilities and at other facilities to include Navy training sites, other Government agencies, maritime schools, and other commercial vendors.	Crew familiarization training on ship-specific systems and equipment to be provided by Contractor MSC will provide training based on CIVMAR) Competency Matrices. Training will occur at MSC-sponsored facilities and at other facilities to include Navy training sites, other Government agencies, maritime schools, and other commercial vendors.	(T=O) Crew familiarization training on ship-specific systems and equipment to be provided by Contractor MSC will provide training based on CIVMAR) Competency Matrices. Training will occur at MSC-sponsored facilities and at other facilities to include Navy training sites, other Government agencies, maritime schools, and other commercial vendors.	TBD	Crew familiarization training on ship-specific systems and equipment to be provided by Contractor MSC will provide training based on CIVMAR) Competency Matrices. Training will occur at MSC-sponsored facilities and at other facilities to include Navy training sites, other Government agencies, maritime schools, and other commercial vendors.	N

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Performance Characteristics					
Development APB Objective	Current APB Development Objective/Threshold		Demonstrated Performance (include Date of Demonstration)	Current Estimate/Actual	Deviation
Space, Weight, Power, and Cooling (SWaP-C)					
Specific SWaP-C margins for future (non-contiguous) installations of self-defense systems to include: -CIWS or SeaRAM -ATTDS - ADC Weight: 68,000 lbs. Space: 500 sq. ft. – above deck space 500 sq. ft. – below deck space Power: 100kW Cooling: 40kW	Specific SWaP-C margins for future (non-contiguous) installations of self-defense systems to include: -CIWS or SeaRAM -ATTDS - ADC Weight: 68,000 lbs. Space: 500 sq. ft. – above deck space 500 sq. ft. – below deck space Power: 100kW Cooling: 40kW	(T=O) Specific SWaP-C margins for future (non-contiguous) installations of self-defense systems to include: -CIWS or SeaRAM -ATTDS - ADC Weight: 68,000 lbs. Space: 500 sq. ft. – above deck space 500 sq. ft. – below deck space Power: 100kW Cooling: 40kW	TBD	Specific SWaP-C margins for future (non-contiguous) installations of self-defense systems to include: -CIWS or SeaRAM -ATTDS - ADC Weight: 68,000 lbs. Space: 500 sq. ft. – above deck space 500 sq. ft. – below deck space Power: 100kW Cooling: 40kW	N

Acronyms/Abbreviations:

- ABS SVR -American Bureau of Shipping Steel Vessel Rules
- AOCF – Operational Availability based on Critical Failures
- ATTDS-ADC - Anti-Torpedo Torpedo Defense System – Acoustic Device Countermeasures
- C4 CASREPs – Category 4 Casualty Reports See comment above at the Sustainment KPP
- CBR – Chemical, Biological and Radiological
- CIVMAR – Civil Service Mariner
- CIWS – Close-in Weapon System
- EST – Expeditionary Security Team
- kW - kilowatt
- lbs. - pounds
- Mbps – Megabits per second
- MSC – Military Sealift Command
- NIPR - Non-Classified Internet Protocol Router
- O -Objective
- OPNAVINST – Office of the Chief of Naval Operations Instruction
- PPE – Personal Protective Equipment
- RFT – Ready for Tasking
- sec. – second(s)
- SIPR - Secret Internet Protocol Router
- sq. ft. – square feet
- SWaP-C – Space. Weight, Power and Cooling
- T – Threshold

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TBD -To Be Determined
USCG – United States Coast Guard

Requirements Source:

Joint Requirements Oversight Council reviewed and validated the Capability Development Document (CDD) for the Fleet Replenishment Oiler on June 16, 2015. Chief of Naval Operations approved updated CDD on February 14, 2017.

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Acquisition Budget Estimate

Total Acquisition Cost

Category(\$M)	Base Year	Development APB	APB Name (Current) 02/05/2020		Budget Estimate PB 2023		Deviation
		Objective (BY\$)	Objective (BY\$)	Threshold (BY\$)	BY\$	TY\$	
RDT&E	2016	67.6	67.6	74.4	65.6	65.6	N
Procurement	2016	8,475.9	11,290.2	12,419.2	11,832.6	15,411.1	N
MILCON	2016	0	0	0	0		N
Acq. O&M	2016	0	0	0	0		N
Total		8,543.5	11,357.8	12,493.6	11,898.3	15,476.7	N
PAUC	2016	502.6	567.9	624.7	594.9	773.9	N
APUC	2016	499.0	564.5	621.0	591.6	770.6	N

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	N/A	N/A
Procurement	20	20

Cost Deviations Explanations:

Cost growth is attributed to (1) increased material costs due to soaring commodity markets and other primary and secondary COVID-19 impacts and (2) overhead, due to declining Government and commercial work which results in T-AO absorbing the preponderance of NASSCO overhead.

APB Unit Cost Deviations Explanations:

Cost growth is attributed to (1) increased material costs due to soaring commodity markets and other primary and secondary COVID-19 impacts and (2) overhead, due to declining Government and commercial work which results in T-AO absorbing the preponderance of NASSCO overhead.

Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Procurement Cost (December 2021)	
1.	If commodity markets continue to be inflated, then additional Cost to Complete will be required as a result of the Economic Price Adjustment clause. Mitigation: Conduct quarterly reviews with NASSCO on timing of material buys
Original Baseline Estimate (September 2018)	
1.	
Revised Original Estimate (N/A)	
None	

Unit Cost

Current Baseline Compared with Current Estimate

Category (BY2016 \$M)	Current APB Feb 2020	Current Estimate	% Change	NMC Breach
PAUC				
Cost	11357.8	12,231	-	-
Quantity	20	20	-	-
Unit Cost	567.890	594.9	4.8%	N
APUC				
Cost	11290.2	12,166.41	-	-
Quantity	20	20	-	-
Unit Cost	564.510	591.6	4.9%	N

Original Baseline Compared with Current Estimate

Category (BY2016 \$M)	Original APB Sep 2017	Current Estimate	% Change	NMC Breach
PAUC				
Cost	8543.5	12,231.95		
Quantity	17	20		
Unit Cost	502.559	594.9	18.4%	N
APUC				
Cost	8475.9	12,166.41		
Quantity	17	20		
Unit Cost	498.582	591.6	18.7%	N

Impacts of Schedule Changes on Unit Cost:

Any change that extends or expands the schedule will incur additional Overhead which will increase Unit Cost.

Actions Taken or Proposed to Control Future Cost Growth:

The FY 2021 Consolidated Appropriations Act and the FY 2022 Omnibus Appropriations Act included +\$20M (SCN) affordability initiatives. The Program Office established the joint Cost Reduction Working Group (CRWG) to identify non-spec cost avoidance up to \$20M per ship by T-AO 208 and follow. CRWG continues to identify new cost avoidance opportunities.

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Contracts

Contract Data (\$TYM)		
Contract Number	N00024-16-C-2229/1	
Effort Number		
Modification Number		
Award Date	June 30, 2016	
Definitization Date	June 30, 2016	
Order Number		
CAGE Code/CAGE Legal Name	General Dynamics, National Steel and Shipbuilding Company (GD NASSCO)	
Contract Title	Detail Design & Construction of T-AO 205	
Contract Address	2798 Harbor Drive, San Diego, CA 92113	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price: 640.207	Current Target Price: 642.186	
Initial Ceiling Price: 713.183	Current Ceiling Price: 715.178	
Contract's EAC: N/A	PM's EAC: N/A	
Initial Quantity: 1	Current Quantity: 1	Delivered Quantity: 1
BAC: N/A	BCWP: N/A	ACWP: N/A
BCWS: N/A	Cost Variance: N/A	Schedule Variance:

Contract Notes:

In accordance with Section 830(a)(2) of the FY 2020 National Defense Authorization Act (NDAA), which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is Controlled Unclassified Information (CUI).

Cost Variance:

Cost Variance reporting is not required on this (FPIF) contract.

Schedule Variance:

Schedule Variance reporting is not required on this (FPIF) contract.

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Contract Data (\$TYM)		
Contract Number	N00024-16-C-2229/2	
Effort Number		
Modification Number		
Award Date	June 05, 2017	
Definitization Date	June 05, 2017	
Order Number		
CAGE Code/CAGE Legal Name	General Dynamics, National Steel and Shipbuilding Company (GD NASSCO)	
Contract Title	Detail Design & Construction of T-AO 206	
Contract Address	2798 Harbor Drive, San Diego, CA 92113	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price: 480.393	Current Target Price: 479.925	
Initial Ceiling Price: 535.149	Current Ceiling Price: 534.522	
Contract's EAC: N/A	PM's EAC: N/A	
Initial Quantity: 1	Current Quantity: 1	Delivered Quantity: 1
BAC: N/A	BCWP: N/A	ACWP: N/A
BCWS: N/A	Cost Variance: N/A	Schedule Variance:

Contract Notes:

Award of advanced procurement is listed. Full funding was awarded March 28, 2018. In accordance with Section 830(a)(2) of the FY 2020 NDAA, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Cost Variance:

Cost Variance reporting is not required on this (FPIF) contract.

Schedule Variance:

Schedule Variance reporting is not required on this (FPIF) contract.

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Contract Data (\$TYM)		
Contract Number	N00024-16-C-2229/3	
Effort Number		
Modification Number		
Award Date	December 05, 2017	
Definitization Date	December 05, 2017	
Order Number		
CAGE Code/CAGE Legal Name	General Dynamics, National Steel and Shipbuilding Company (GD NASSCO)	
Contract Title	Detail Design & Construction of T-AO 207	
Contract Address	2798 Harbor Drive, San Diego, CA 92113	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price: 465.558	Current Target Price: 464.978	
Initial Ceiling Price: 518.623	Current Ceiling Price: 517.876	
Contract's EAC: N/A	PM's EAC: N/A	
Initial Quantity: 1	Current Quantity: 1	Delivered Quantity: 1
BAC: N/A	BCWP: N/A	ACWP: N/A
BCWS: N/A	Cost Variance: N/A	Schedule Variance:

Contract Notes:

Award of advanced procurement is listed. Full funding was awarded December 27, 2018. In accordance with Section 830(a)(2) of the FY 2020 NDAA, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Cost Variance:

Cost Variance reporting is not required on this (FPIF) contract.

Schedule Variance:

Schedule Variance reporting is not required on this (FPIF) contract.

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Contract Data (\$TYM)		
Contract Number	N00024-16-C-2229/4	
Effort Number		
Modification Number		
Award Date	December 27, 2018	
Definitization Date	December 27, 2018	
Order Number		
CAGE Code/CAGE Legal Name	General Dynamics, National Steel and Shipbuilding Company (GD NASSCO)	
Contract Title	Detail Design & Construction of T-AO 208	
Contract Address	2798 Harbor Drive, San Diego, CA 92113	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price: 463.117	Current Target Price: 462.526	
Initial Ceiling Price: 515.903	Current Ceiling Price: 515.142	
Contract's EAC: N/A	PM's EAC: N/A	
Initial Quantity: 1	Current Quantity: 1	Delivered Quantity: 1
BAC: N/A	BCWP: N/A	ACWP: N/A
BCWS: N/A	Cost Variance: N/A	Schedule Variance:

Contract Notes:

Full funding was awarded December 27, 2018. In accordance with Section 830(a)(2) of the FY 2020 NDAA, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Cost Variance:

Cost Variance reporting is not required on this (FPIF) contract.

Schedule Variance:

Schedule Variance reporting is not required on this (FPIF) contract.

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Contract Data (\$TYM)		
Contract Number	N00024-16-C-2229/5	
Effort Number		
Modification Number		
Award Date	December 27, 2018	
Definitization Date	December 27, 2018	
Order Number		
CAGE Code/CAGE Legal Name	General Dynamics, National Steel and Shipbuilding Company (GD NASSCO)	
Contract Title	Detail Design & Construction of T-AO 209	
Contract Address	2798 Harbor Drive, San Diego, CA 92113	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price: 472.476	Current Target Price: 471.890	
Initial Ceiling Price: 526.324	Current Ceiling Price: 525.563	
Contract's EAC: N/A	PM's EAC: N/A	
Initial Quantity: 1	Current Quantity: 1	Delivered Quantity: 1
BAC: N/A	BCWP: N/A	ACWP: N/A
BCWS: N/A	Cost Variance: N/A	Schedule Variance:

Contract Notes:

Award of advanced procurement is December 27, 2018. Full funding was awarded March 12, 2020. In accordance with Section 830(a)(2) of the FY 2020 NDAA, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Cost Variance:

Cost Variance reporting is not required on this (FPIF) contract.

Schedule Variance:

Schedule Variance reporting is not required on this (FPIF) contract.

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Contract Data (\$TYM)		
Contract Number	N00024-16-C-2229/6	
Effort Number		
Modification Number		
Award Date	March, 12, 2020	
Definitization Date	March, 12, 2020	
Order Number		
CAGE Code/CAGE Legal Name	General Dynamics, National Steel and Shipbuilding Company (GD NASSCO)	
Contract Title	Detail Design & Construction of T-AO 210	
Contract Address	2798 Harbor Drive, San Diego, CA 92113	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price: 479.434	Current Target Price: 484.755	
Initial Ceiling Price: 534.062	Current Ceiling Price: 539.879	
Contract's EAC: N/A	PM's EAC: N/A	
Initial Quantity: 1	Current Quantity: 1	Delivered Quantity: 1
BAC: N/A	BCWP: N/A	ACWP: N/A
BCWS: N/A	Cost Variance: N/A	Schedule Variance:

Contract Notes:

Full funding was awarded March 12, 2020. In accordance with Section 830(a)(2) of the FY 2020 NDAA, which requires a SAR to be submitted "in unclassified form without any designation relating to dissemination control" this SAR section has omitted information that is CUI.

Cost Variance:

Cost Variance reporting is not required on this (FPIF) contract.

Schedule Variance:

Schedule Variance reporting is not required on this (FPIF) contract.

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Technologies and Systems Engineering

Significant Technical Risks

Significant Technical Risks	
Current Estimate (December 2021)	
1.	If the Degaussing system does not meet required capabilities, then additional design spiral and schedule/cost delays will be required to fix the system; Mitigation: Range testing to confirm performance.
2.	If underway replenishment Motor Operated Valves latency cannot be improved, then underway refueling alongside times will be increased. Mitigation: Assess fleet operational impact; Develop design solution to improve timing; Install ship change to implement design change prior to IOT&E

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Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	0.00%
Production	6	0	20	0.00%
Total Program Quantity Delivered	6	0	20	0.00%

Expended and Appropriated (TY \$M)

Total Acquisition Cost: 15,476.7

Expended to Date: \$2,125.8

Percent Expended: 13.7%

Total Funding Years: 27

Years Appropriated: 13

Percent Years Appropriated: 48.1

Appropriated to Date: \$5,192.8 (thru FY22)

Percent Appropriated: 34%

The above data is current as of: April 18, 2022.

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Low Rate Initial Production (LRIP)

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	September 22, 2017	May 16, 2018
Approved Quantity	6	8
Reference	Milestone B/C ADM	Assistant Secretary of the Navy (Research, Development, and Acquisition), ASN (RD&A) ADM
Start Year	2016	2016
End Year	2022	2023

Rationale if Current Total LRIP Quantity exceeds 10% of the total Procurement quantities:

The Current Total LRIP Quantity is more than 10% of the total production quantity due to the award of a block buy contract with National Steel and Shipbuilding Company (NASSCO) for six ships.

LRIP Note:

LRIP quantity increased per the Assistant Secretary of the Navy (Research, Development, and Acquisition) Acquisition Decision Memorandum dated May 16, 2018.

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Operating and Support Costs (O&S)

Total Program O&S Cost Compared with Baseline

	Current APB Objective (BY\$)	Current APB Threshold (BY\$)	Current Estimate (BY\$)	Current Estimate (TY\$)	Deviation
Total O&S (\$Millions)	32,671	35,938.1	\$32,671.2\$	\$72,352.0	N

O&S Cost Breakdown:

Allocate O&S estimate by each weapon system (or system variants) acquired by the program) into the CAPE Cost Categories. Add a fresh column for each variant/system.

Category (BY\$ Million)	T-AO 205
Unit-Level Manpower	8.6
Unit Operations	9.9
Maintenance	9.4
Sustaining Support	0.3
Continued System Improvements	0.4
Other	12.3
Total O&S	40.9

Cost Estimate Source: POE signed by Cost Engineering & Industrial Analysis, NAVSEA 05C on January 16, 2020

Disposal/Demilitarization Cost Estimate and Source of Estimate: POE signed January 16, 2020

Disposal/Demilitarization Total Cost (BY 2016 \$M): 74.4

Disposal costs account for the inactivation cost and the net disposal (scrap) cost. The T-AO 205 is not currently being considered as a remobilization asset; therefore no costs are set aside for that effort once the ship is decommissioned and taken out of service.

Sustainment Strategy:

The Military Sealift Command (MSC) maintains the T-AO Fleet Replenishment Oilers utilizing established sustainment practices and maintenance philosophy which reflect the ship's commercial design and construction, utilization of commercial equipment and MSC's two-level maintenance philosophy consisting of shipboard and depot level maintenance. Sustainment efforts follow commercial merchant service practices that emphasize maximizing cost effectiveness and ship availability. Operating Tempo was assumed 55% of In Fleet Time (IFT) steaming underway and 45% of IFT steaming not underway, the average of the Dry Cargo/Ammunition Ship (T-AKE) Visibility and Management of Operating and Support Costs (VAMOSOC) data and the T-AO 201-204 data.

Quantity to Sustain: 20

Unit of Measure: Ship

Service Life per Unit: 40.00 Years

Fiscal Years in Service: FY 2021 - FY 2075

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Antecedent System(s) O&S Costs:

The Antecedent Systems are the T-AO 187 Class (specifically hulls T-AO 201-204) and T-AKE 1 Class as these are the most recent double-hulled auxiliary ships. The T-AO 201-204 and T-AKE 1-14 estimates were derived using the VAMOSC database and the MSC Indirect values. The years of data used for T-AO 201-204 was FY 1993 through FY 2015. The years of data used for T-AKE 1-14 was FY 2006 through FY 2015.

Annual O&S Costs BY2016 \$M		
Cost Element	T-AO 205 Class Average Annual Cost Per Ship	T-AO 187 Class (Antecedent) Average Annual Cost Per Ship
Unit-Level Manpower	8.750	9.000
Unit Operations	9.580	11.000
Maintenance	9.440	6.000
Sustaining Support	0.339	1.000
Continuing System Improvements	0.450	1.000
Indirect Support	12.280	11.000
Other	-	-
Total	40.839	39.000

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