SUMMARY

FILLER WIRE DEVELOPMENT FOR 2195 ALUMINUM-LITHIUM

CONCLUSIONS

DOWNSELECT WELD EVALUATION

DOWNSELECT

WELD EVALUATION

FILLER WIRE CHEMISTRY FORMULATION

APPROACH

OBJECTIVE

INTRODUCTION

LOCKHEED MARTIN
INTRODUCTION

FILLER WIRE DEVELOPMENT FOR 2195 ALUMINIUM-LITHIUM
OBJECTIVE

FILLER WIRE DEVELOPMENT FOR 2195 ALUMINIUM-LITHIUM
FILLER WIRE CHEMISTRY RECOMMENDATION

REPAIR WELDING
MANUAL GTA

APPROACH

(3) CHEMISTRYS
FILLER WIRE CHEMISTRY DOWNSCALE

(14) CHEMISTRYS
FILLER WIRE FORMULATION

TACK WELDING
MANUAL GTA

REPAIR WELDING
MANUAL GTA

REPAIR WELDING
AUTOMATED

VPPA WELDING
AUTOMATED

VPPA WELDING

FILLER WIRE DEVELOPMENT FOR 2195 ALUMINUM-LITHIUM

LOCKHEED MARTIN

NASA
(5) 2319 VARIANTS CHEMISTRIES Cu, Sc, Zr

(8) DOE CHEMISTRIES Cu, Li, Mg, Ag, Zn, Mn, V, Ti, Zr

FILLER WIRE CHEMISTRIES

FILLER WIRE DEVELOPMENT FOR 2195 ALUMINIUM-LITHIUM

LOCKHEED MARTIN

NASA
0.320" 2.195 PLATE TO 2.195 PLATE

(6) MENT SAMPLES
(3) SCC
(2) RT IRC FUSION LINE
(2) RT IRC CENTERLINE
(3) RT SHAVED TENSILES
(3) RT AS-WELDED TENSILE

(2) 16" LONG TEST PANELS WELDED

FILLER WIRE DEVELOPMENT FOR 2195 ALUMINUM-LITHIUM

LOCKHEED MARTIN

NASA
TWO SIDED REPAIR WELD

E-STOP WELD
COVER PASS

E-STOP CRACKING

0.320" 2195 PLATE TO 2195 PLATE

MANUAL GTA REPAIR WELDING

FILLER WIRE DEVELOPMENT FOR 2195 ALUMINIUM-LITHIUM

LOCKHED MARTIN

NASA
WELD ULTIMATE TENSILE STRENGTH

FILLER WIRE DEVELOPMENT FOR 2195 ALUMINUM-LITHIUM

LOCKHEED MARTIN

NASA
WELD ELONGATION
DOWNSELECT VPAA WELDING
FILLER WIRE DEVELOPMENT FOR 2195 ALUMINUM-LITHIUM

LOCKHEED MARTIN

NASA
Downdraft manual GTA repair welding filler wire development for 2195 aluminum-lithium
ULTIMATE TENSILE STRENGTH (KSI)

REPAIR WELD ULTIMATE STRENGTH

DOWNSELECT MANUALLY GTA REPAIR WELDING

FILLER WIRE DEVELOPMENT FOR 2195 ALUMINUM-LITHIUM

LOCKHEED MARTIN

NASA
REPAIR WELD ELONGATION
DOWNSELECT MANUAL GTA REPAIR WELDING
FILLER WIRE DEVELOPMENT FOR 2195 ALUMINUM-LITHIUM
CONCLUSIONS

Filler Wire Chemistry

Filler Wire Development For 2195 Aluminum-Lithium
FILLER WIRE DEVELOPMENT FOR 2195 ALUMINUM-LITHIUM

OBJECTIVE

IDENTIFY AN Al-Cu BASED FILLER WIRE CHEMISTRY WHICH REDUCES WELD CRACK SUSCEPTIBILITY IN 2195 ALUMINUM-LITHIUM WELDS AND REPAIR WELDS ALONG WITH PROVIDING ADEQUATE MECHANICAL PROPERTIES.