

NOTES:

1. APPLICABLE STANDARDS/SPECIFICATIONS:  
 A. MIL-STD-100G  
 B. ASME Y14.5M-1994

2. HOUSING INFORMATION:  
 2.A. MATERIAL: DUCTILE IRON SAE J434 GRADE D5506, INCLUDING THE FOLLOWING CONDITIONS:  
 2.A.A. FOR EACH HEAT OF CASTINGS, SAMPLING FOR CHEMISTRY, MICROSTRUCTURE AND MECHANICAL PROPERTIES FROM STANDARD TEST PIECES PER ASTM A536 SHALL BE TAKEN. THIS INFORMATION SHALL BE PROVIDED TO TACOM UPON REQUEST.

- 2.A.B. CHEMISTRY SHALL CONFORM AS FOLLOWS:

TOTAL C	SI	Mn	P	S
3.2-4.1%	1.8-3%	0.10-1.0%	0.015-0.1%	0.005-0.035%

- 2.A.C. MICROSTRUCTURE SHALL CONFORM AS FOLLOWS:  
 FERRITE: 50% MAX.  
 PEARLITE: 50% MIN.  
 CARBIDE: 0  
 NODULARITY: 80% MINIMUM SPHEROIDAL GRAPHITE PER ASTM A247, TYPES I AND II

- 2.A.D. MECHANICAL PROPERTIES SHALL CONFORM AS FOLLOWS:  
 TENSILE ULTIMATE: 80,000 PSI MINIMUM  
 TENSILE YIELD: 55,000 PSI MINIMUM  
 ELONGATION: 6% MINIMUM  
 BRINELL HARDNESS: 187-235

- 2.B. REMOVE ALL GATES, FLASH, BURRS, AND BREAK ALL SHARP EDGES.

- 2.C. INSPECTION AND ACCEPTANCE OF CASTINGS AS FOLLOWS:  
 2.C.A. THE VISUAL APPEARANCE OF THE AS-CAST SURFACES SHALL MEET THE MANUFACTURERS STANDARDIZATION SOCIETY SPECIFICATION MSS #SP-55 ACCORDING TO THE FOLLOWING TABLE UNLESS SPECIFIED ON THE DRAWING:

AS CAST SURFACE QUALITY REQUIREMENTS			
TYPE	NAME	MSS SPH55 LEVEL	ISOLATED AREAS ONLY
I	HOT TEARS AND CRACKS	NONE	
II	SHRINK	C	
III	SAND INCLUSIONS	E	X
IV	GAS POROSITY	C	X
V	VEINING	C	X
VI	RAT TAILS	C	
VII	WRINKLES, LAPS, FOLDS	B	X
VIII	COLD SHUTS	NONE	
IX	CUTTING MARKS	BI	X
X	SCABS	E	X
XI	CHAPLETS	CI	
XII	WELD REPAIR AREAS	BI	
XIII	SURFACE ROUGHNESS	C	X
I TO BE APPROVED BY PLANT QUALITY MANAGEMENT			

- 2.C.B. RADIOGRAPHIC RESULTS FOR SOUNDNESS SHALL BE MADE AVAILABLE TO TACOM UPON REQUEST. ANY CHANGE IN THE GATING, RISER, OR MOLD DESIGN SHALL REQUIRE NEW RADIOGRAPHIC INSPECTION.

- 2.D. PRODUCTION QUALITY CONTROL REQUIREMENTS

- 2.D.A. THE FOLLOWING ITEMS SHALL BE CHECKED AS FOLLOWS:  
 - MODULARITY FOR EVERY PIECE USING ULTRASONIC TESTING IAW ASTM E494. THERE SHALL BE AT LEAST THREE MEASUREMENTS ON EACH CASTING NEAR CRITICAL LOCATIONS (AS DETERMINED BY SUPPLIER) ON THE PIECE.  
 - MECHANICAL PROPERTIES OF STANDARD TEST BARS FOR EVERY HEAT.  
 - METAL CHEMISTRIES FOR EVERY HEAT.  
 - MICROSTRUCTURE VERIFICATION FOR EVERY HEAT.

- 2.E. FAILURE OF ANY PRODUCTION LOT TEST SAMPLE SHALL BE CAUSE FOR REJECTION OF THE ENTIRE PRODUCTION LOT, OR SHALL REQUIRE INDIVIDUAL TESTING OF EACH PIECE FROM THE PRODUCTION LOT. CORRECTIVE ACTION SHALL BE TAKEN TO ELIMINATE THE DEFECT AND DETERMINE THE ROOT CAUSE OF THE FAILURE.

3. ASTM E380 APPLIES. METHOD B SHALL BE USED IN CONVERTING AND ROUNDING OFF. 1 INCH = 25.4mm APPLIES.

4. CLEAN AND PRETREAT: IAW MERITOR SPEC M 2.09  
 FINISH AND PAINT: IAW MERITOR SPEC M 2.10  
 REWORK FOR PAINTING: IAW MERITOR SPEC M 2.11

5. DIMENSIONS WITHOUT TOLERANCES SPECIFIED ARE FOR REFERENCE ONLY AND SHALL NOT BE USED FOR INSPECTION PURPOSES.

6. DIMENSIONAL LIMITS AND SURFACE TEXTURE APPLY BEFORE PAINTING.

7. PLUG AND CAP ALL PORTS BEFORE SHIPPING.

8. DO NOT PAINT INTERFACE FASTENERS NOR THE INTERFACE PORTIONS OF THE YOKE MATING WITH THE UNIVERSAL JOINT AND BEARING CUP.

9. INSIDE TURN ANGLE MUST BE SET TO 36° ± 0°

10. EACH BRAKE SHOE ASSEMBLY (LINING) SHALL BE WITHIN 0.5 TO 1.0MM (.020-.040IN) INITIAL SETUP OF THE BRAKE DRUM.

11. FAILURE TEST: THE AXLE SHALL BE SUBJECTED TO THE GIVEN INPUT TORQUE, T, FOR THE GIVEN RPM AND NUMBER OF PINION CYCLES, N.

T (LB-FT)	RPM	N
1506	425	17881
3697	200	107
855	700	450281

12. CTIS DURABILITY TEST: AFTER A BREAK-IN PERIOD, AT THE MANUFACTURER'S DISCRETION:  
 A. PRESSURIZE AIR CAVITY TO 80 ± 2 PSI. REMOVE AIR SOURCE AND MONITOR FOR 2 MINUTES. THE LEAK RATE SHALL NOT EXCEED 10 PSI PER MINUTE.  
 B. PRESSURIZE AIR CAVITY TO 80 ± 2 PSI. ROTATE INPUT SHAFT AT 3000 ± 25 RPM FOR 50 HOURS MINIMUM. REPEAT STATIC TEST ABOVE.

13. CTIS SEAL PROOF TEST: APPLY 125 ± 5 PSI AIR PRESSURE FOR 5 MINUTES, MINIMUM, TO THE WHEEL END CTIS PARTS. REDUCE TO 80 ± 2 AND REMOVE AIR SUPPLY. MONITOR FOR 2 MINUTES. THE PRESSURE DROP AT EACH HUB SHALL NOT EXCEED 10 PSI PER MINUTE.

14. CTIS ENVIRONMENTAL TEST:  
 A. COLD TEST-SOAK THE AXLE ASSEMBLY AT -50° ± 2/-0° F FOR 4 HOURS, MINIMUM. RUN THE AXLE AT AN INPUT SPEED OF 650 ± 25 RPM FOR 60 MINUTES IN THE FORWARD DIRECTION AND 10 MINUTES IN THE REVERSE DIRECTION. PERFORM A STATIC AIR LEAK CHECK AS DESCRIBED IN 12A WITHIN THE FIRST 30 MINUTES OF FORWARD OPERATION AND UPON COMPLETION OF THE REVERSE OPERATION. THE PRESSURE DROP LEAK RATE OF EACH HUB SHALL NOT EXCEED 10 PSI PER MINUTE DURING BOTH CHECKS.

- B. HOT TEST-AFTER COMPLETING THE COLD TEST THE AXLE SHALL BE SUBJECTED TO A TEMPERATURE OF 120° ± 2 F UNTIL STABILIZED. ONCE STABILIZATION HAS BEEN REACHED RUN THE AXLE AT AN INPUT SPEED OF 650 ± 25 RPM FOR 60 MINUTES IN THE FORWARD DIRECTION AND 10 MINUTES IN THE REVERSE DIRECTION. PERFORM A STATIC AIR LEAK CHECK AS DESCRIBED IN 12A WITHIN THE FIRST 30 MINUTES OF FORWARD OPERATION AND UPON COMPLETION OF THE REVERSE OPERATION. THE PRESSURE DROP LEAK RATE SHALL NOT EXCEED 10 PSI PER MINUTE DURING EACH OF THE TESTS.

15. BRAKE PROOF PRESSURE CHECK: APPLY 125 ± 5 PSI AIR PRESSURE INTO THE AIR BRAKE SYSTEM. ANY EVIDENCE OF LEAKAGE SHALL BE CAUSE FOR REJECTION.

16. NOMINAL AXLE LOAD RATING (GAWR) IS 14,700 LB REF. AXLE WEIGHT IS 1372 LB REF.

17. SENSOR ASSEMBLY SHALL BE COMPATIBLE WITH CABLE ASSEMBLY 12421851, HAVE A RESISTANCE OF 700-3000 OHMS BETWEEN PINS, AND A VOLTAGE OF 0.2 VOLTS AC WHEN WHEEL IS ROTATED AT 30 RPM.

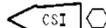
18. SENSOR ASSEMBLY IS TO TRANSMIT ELECTRICAL PULSES USED BY A MERITOR WABCO ANTI-LOCK BRAKING SYSTEM (ABS) ECU.

19. DRIVE RATIO = 7.8:1. COUNTER-CLOCKWISE INPUT TO YOKE, WHILE FACING THE YOKE, RESULTS IN FORWARD MOVEMENT.

20. FIRST ARTICLE TESTING REQUIREMENTS:  
 A. COMPLETE PERFORMANCE VERIFICATION OF NOTED TEST REQUIREMENTS. SEE NOTE(S) 11, 12, 13, 14, 15 AND 17.  
 B. TEST SAMPLE FAILURE: FAILURE OF ANY TEST SAMPLE SHALL BE CAUSE FOR REJECTION OF THE ENTIRE REPRESENTATIVE PRODUCTION LOT. ITEMS SHALL NOT BE PRESENTED FOR ACCEPTANCE AFTER A FAILURE UNTIL CORRECTIVE ACTION HAS ELIMINATED THE DEFECT AND THE ROOT CAUSE OF THE FAILURE.  
 C. CERTIFICATION OF MATERIAL: SEE NOTE(S) 2.A., 2.B. AND 2.C.

21. CRITICAL SAFETY INSTALLATIONS:  
 TIE ROD INSTALLATION  
 1. VERIFY THE TORQUE ON THE ROD NUTS IS IN THE RANGE 190-244 N-m (140-180 LB-FT).  
 2. VERIFY THAT THE COTTER PINS ARE INSTALLED ON THE RODS NUTS BY THE FOLLOWING PROCESS: TORQUE NUT TO CORRECT VALUE (190-244 N-m / 140-180 LB-FT). TURN NUT SO THAT THE COTTER PIN WILL BE INSTALLED IN THE NEXT AVAILABLE (TIGHTER) HOLE.

22. CRITICAL SAFETY CHARACTERISTIC(S) WITH A NOTE REFERENCE ARE INDICATED WITH THE SYMBOL:



23. CONTROL METHODS FOR CRITICAL CHARACTERISTIC(S):  
 A. PROCESS CAPABILITY INDEX (Cpk)  
 1. MINIMUM ACCEPTABLE PROCESS CAPABILITY INDEX (Cpk) FOR CHARACTERISTICS IDENTIFIED AS CSI (CRITICAL SAFETY ITEM) SHALL BE THE FOLLOWING:  
 a. CRITICAL SAFETY ITEM CHARACTERISTICS SHALL MAINTAIN A Cpk INDEX EQUAL TO OR GREATER THAN 1.66 FOR VARIABLES OR A 100% PROCESS AVERAGE RATE OF ACCEPTANCE FOR ATTRIBUTES.  
 B. ALTERNATIVE CONTROL METHODS:  
 1. ONE HUNDRED PERCENT (100%) INSPECTION AND/OR TEST OF THE CRITICAL CHARACTERISTICS.  
 2. AN ALTERNATIVE CONTROL METHOD APPROVED BY THE PROCURING OFFICER'S REPRESENTATIVE SUCH AS DESIGN OF EXPERIMENT (DOE) AND PROCESS CAPABILITY STUDY (PCS).  
 C. THE CONTROL METHODS SELECTED FOR ALL REMAINING CHARACTERISTICS SHALL BE AT THE SUPPLIER/SUBCONTRACTORS DISCRETION. REGARDLESS OF THE CONTROL METHODS USED, IT SHALL BE ADEQUATE TO MAINTAIN CONFORMANCE TO ENGINEERING DRAWINGS.



24. ITEM IDENTIFICATION: MARK PART WITH IAW STANDARD COMMERCIAL PRACTICE TO INCLUDE VENDOR IDENTIFICATION AND VENDOR PART NUMBER, AS A MINIMUM.

25. REFER TO DRAWING NUMBER 12422258 FOR REPAIR PARTS LIST.

26. ONLY THE ITEM DESCRIBED ON THIS DRAWING WHEN PROCURED FROM THE VENDOR(S) LISTED HEREON IS APPROVED BY U.S. ARMY-TANK AUTOMOTIVE COMMAND (TACOM), WARREN, MI 48397-5000 FOR USE IN THE APPLICATION(S) SPECIFIED HEREON. A SUBSTITUTE ITEM SHALL NOT BE USED WITHOUT PRIOR APPROVAL FROM TACOM.

27. IDENTIFICATION OF THE APPROVED SOURCE(S) OF SUPPLY HEREON IS NOT TO BE CONSTRUED AS A GUARANTEE OF PRESENT OR CONTINUED AVAILABILITY AS A SOURCE OF SUPPLY FOR THE ITEM(S) DESCRIBED ON THIS DRAWING.

APPROVED SOURCE(S) OF SUPPLY			
PART NO.	VENDOR		ITEM IDENTIFICATION
	ADDRESS	CAGE CODE	
12422745	ARVINMERITOR TROY, MICHIGAN 48064	78500	RF1261NFSF14 780

28. REFER TO KIT DRAWING 5TK2047 FOR STAMPED TO CAST AXLE REPLACEMENT.

29. REFER TO DRAWING 12421993, FRONT SUSPENSION SYSTEM INSTALLATION, FOR FINAL TOE ALIGNMENT.

REVISIONS			
ZONE/REV	DESCRIPTION	DATE	APPROVED
-	INITIAL RELEASE		
-	-PRODUCT BASELINE-		
ERR SSS-R6714			
C6	A 1) REVISED NOTE 28. ERR SSS-UT363	03-01-22	B. PUSTKA HJH BP
C6	A4 B 1) ADDED NOTE 28. 2) REPLACED DISTRIBUTION STATEMENT A. 3-5) SEE SHEET 2. 6) SEE SHEET 3. ERR SSS-UT374	03-01-27	B. PUSTKA HJH BP

REVISION STATUS OF SHEETS
— B B B
— SHEET 3 SHEET 2 SHEET 1

METRIC

CRITICAL SAFETY ITEM

SOURCE CONTROL DRAWING 29

PART NO. 12422745

FIG. A	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	CONTRACT NUMBER	DESIGN ACTIVITY
	TOLERANCES ON 1 PLACE ± 2 PLACE ±	DAAE07-98-C-0005	U.S. ARMY TANK AUTOMOTIVE COMMAND WARREN, MICHIGAN 48397-5000
	THIRD ANGLE PROJECTION	CONTRACTOR STEWART & STEVENSON SERVICES SEALY TEXAS U.S.A.	AXLE ASSEMBLY, FRONT, DRIVE, STEERING, ABS
12421993	FMTV A1	DATE (YR-MO-DA) 01/07/28	E
NEXT ASSY	USED ON	CHECKER T. FON	ENGINEER T. FON
APPLICATION	WAT' ENGR M. CHURCH	DRAWING APPROVAL - GOV'T R. REDDY	SCALE 1/16
		DESIGN APPROVAL - GOV'T R. REDDY	FILE NO. 12422745
			SHEET 1 OF 3

DISTRIBUTION STATEMENT C:  
 DISTRIBUTION AUTHORIZED TO U.S. GOVERNMENT AGENCIES AND THEIR CONTRACTORS.  
 REASON: ADMINISTRATIVE OR OPERATIONAL USE.  
 DATE OF DETERMINATION: 02-12-20  
 OTHER REQUESTS FOR THIS DOCUMENT SHALL BE REFERRED TO THE U.S. ARMY TANK AUTOMOTIVE AND ARMAMENTS COMMAND, ATTN: SFAE-CSS-MT, WARREN, MICHIGAN 48397-5000.

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