



Model: See Affected Equipment

Serial #: N/A

Nov. 19, 2021

Product Bulletin # CDS-008

Alert



ICDS Grapple Retention Retrofit Solution

Issue

An incident occurred in which two ICDS tool grapples came loose and fell to the rig floor. Canrig recommends the following course of action to prevent such incidents from occurring in the future.

Affected Equipment

All the 12-3/4" to 16-3/4" ICDS tools regardless of the date of manufacture.

Background

With the current 12-3/4" to 16-3/4" ICDS design, the grapples are required to be securely fastened when rotating while the grapples are NOT stabbed into the casing. Refer to the CDS Installation and Operations Guide – Document # 883003 (Currently Rev. 16 at the time this bulletin was published) for related Warnings and Information on when and how to securely fasten the grapples.

A dropped-object incident occurred directly caused by a malfunctioning top drive. During the troubleshooting, the top drive suddenly and unintentionally rotated at approximately 90 rpm while the grapples of the 18-5/8" ICDS tool were NOT stabbed into the casing. In these very rare conditions, the generated centrifugal force allowed the grapples to move away from the mandrel and collide with the CDS Links. As a result two heavily damaged grapples fell to the rig floor. There was no personnel injury.

12-3/4" to 16-3/4" ICDS tools and 18-5/8" ICDS tools share the same design.

A grapple retention retrofit solution is required to prevent a similar dropped-object incident under the same unusual conditions.



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Action Required

Take the actions to retrofit the 12-3/4" to 16-3/4" ICDS tools by following the steps 1 to 7 below.

1. Dismantle the CDS – See Figure 1 and Figure 2 (Casing Stop Bumper and Collar and Spearhead Assembly not shown).

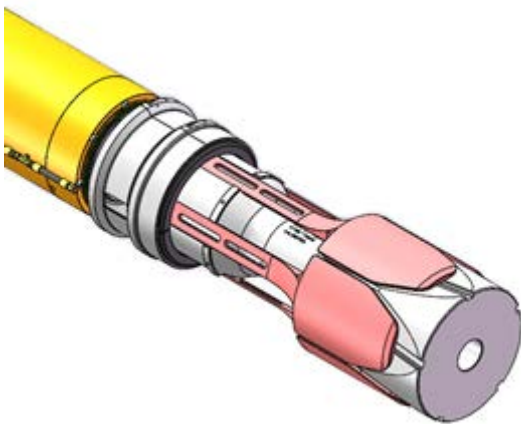


Figure 1

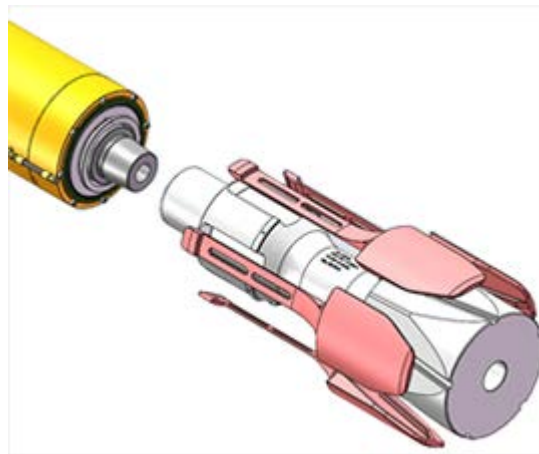


Figure 2

- Remove the Spearhead Assembly and Grapples from the CDS tool.
- Refer to the CDS Installation and Operations Guide – Document # 883003 for instructions on how to remove the grapples.
- Determine the grapple serviceability:
Refer to the CDS Maintenance Guide – Document # 883004 (Currently Rev. 17 at the time this bulletin was published).
- Disassemble the Mandrel from the CDS actuator and determine serviceability:
Refer to the CDS Maintenance Guide – Document # 883004 for instructions on how to break-out the mandrel and determine serviceability.



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2. Modification of 'on-hand' Mandrel(s) – P/N: 15553 or 15553-1 – See Figure 3.

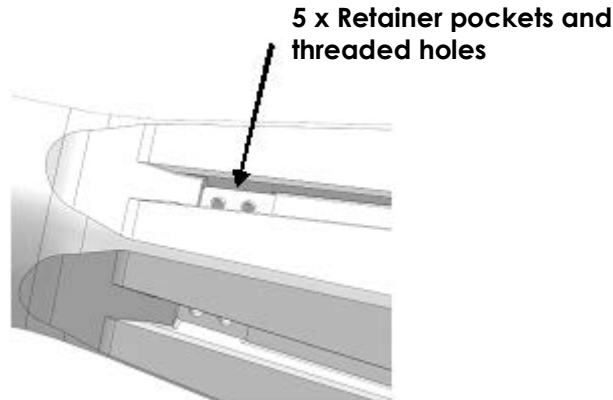


Figure 3

- Machine the slots, drill and thread the holes as per P/N: 5101754 – Mandrel, 13-3/8" – Modified for grapple retention.
- Refer to Appendix A for drawing 5101754.

3. Modification of 'on hand' Grapples – (all grapple sizes 12-3/4" to 16-3/4") - qty. 5 per set – See Figure 4.

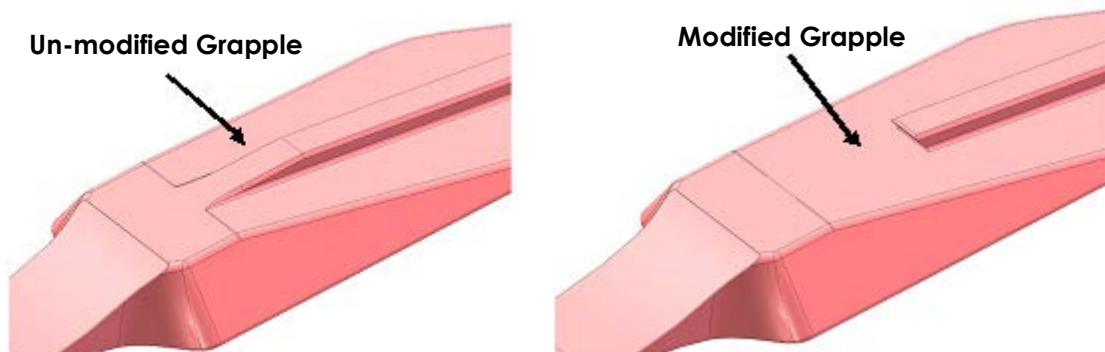


Figure 4

- If it is determined that the grapples are still serviceable, modify the grapples' rib as per P/N: 5101755 – Grapple, 12-3/4" to 16-3/4", Modified for retention.
- Refer to Appendix B for drawing 5101755.



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- Grapples that qualify for modification/retrofit:

Drawing # 80183202 Rev6 – 12-3/4" to 16-3/4" Casing

Casing		Part No.
NOM. DIA	WEIGHT	
13-3/8"	48.0–72.0 LB	15583
13-3/8"	68.0–102.0 LB	15584
16"	65–84 LB	17726
16"	96–118 LB	860121
16-3/4"	72.94–86.29 LB	5081711

4. Grapple Retainers Procurement

- a. Procure P/N: 5101757 – Kit, Grapple retention, 12-3/4" to 16-3/4" grapples – from RIGLINE 24/7™.

The kit includes the following parts:

Grapple Retention Kit, 17-7/8" to 20" Grapples - Canrig P/N: 5101745

Item No.	Part No.	Qty.	Description
1	5101744	5	Retainer, Grapple, 12-3/4" to 16-3/4", ICDS
2	5040289	12*	Washer, Nord-Lock, 3/8"
3	3298	12*	Screw, Cap, Skt HD, 3/8"-16UNC x 3/4"
4	5101759	1	Wrench, Allen Bit Socket, 5/16" hex drive, 1/2" square drive

* Include 2 spares each

- Refer to Appendix C for #5101757 Grapple Retention Kit drawing.

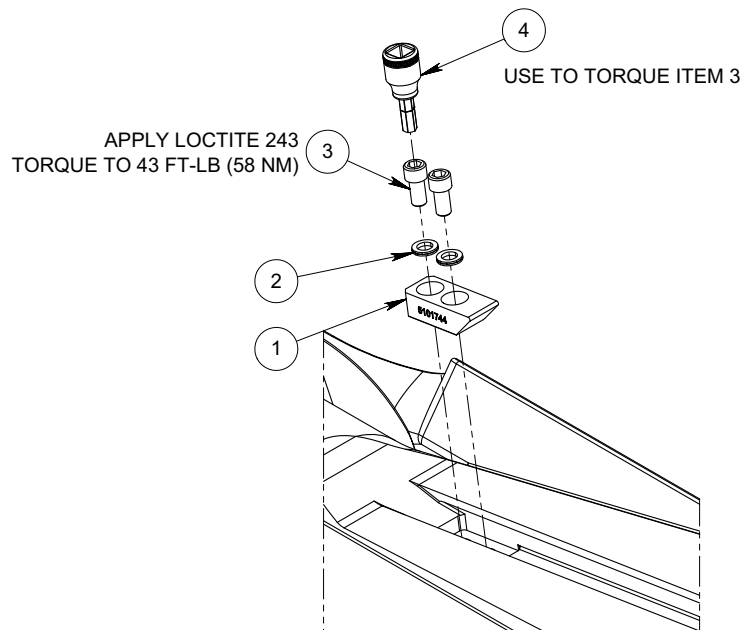


Figure 5

5. Assemble P/N: 5101744 – Grapple Retainers (qty. 5) – on the modified mandrel.
 - Refer to Figure 6 for the assembling detail.
 - Apply Loctite #243 to the screws.
 - Ensure the correct orientation of the Grapple Retainer.
 - Ensure the proper installation of the Nord-Lock washers.
 - Ensure the retainer is tight to the face of the pocket before the bolts are tighten. See Figure 6:

Ensure the retainer is tight against face of the pocket

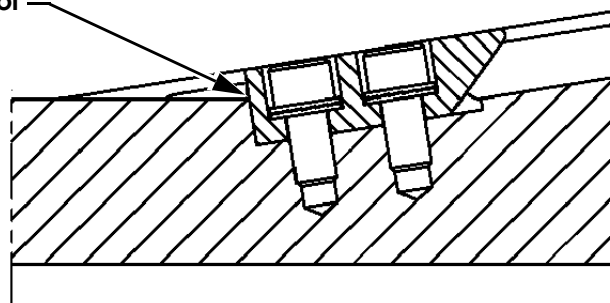


Figure 6



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- Use P/N: 50101759 – Allen Bit Socket and appropriate Torque Wrench to tighten the screws to 43 ft-lb.
6. Re-assemble the Drive with modified mandrel to the actuator.
- Refer to the CDS Maintenance Guide – Document # 883004 for instructions on how to re-install the mandrel and other Drive components to the Actuator.
7. Install modified Grapples.
- Refer to the CDS Installation and Operations Guide – Document # 883003 for instructions on how to install the grapples.



Warning! When the modified grapples are stroked-in/retracted while the retrofit 12-3/4" to 16-3/4" ICDS is in horizontal position, ensure that the grapples positioned in the lower side are not moving away from the mandrel's ramps due to the gravity forces. Failure to maintain the lower side grapples close to the mandrel's ramps (in actuator release/open mode) may result in damage to the grapples and/or grapple retainers.



Note: The P/N: 5102566 – Grapple Retaining Strap – (see Figure 7), is required for retrofitted 12-3/4" to 16-3/4" ICDS tools.

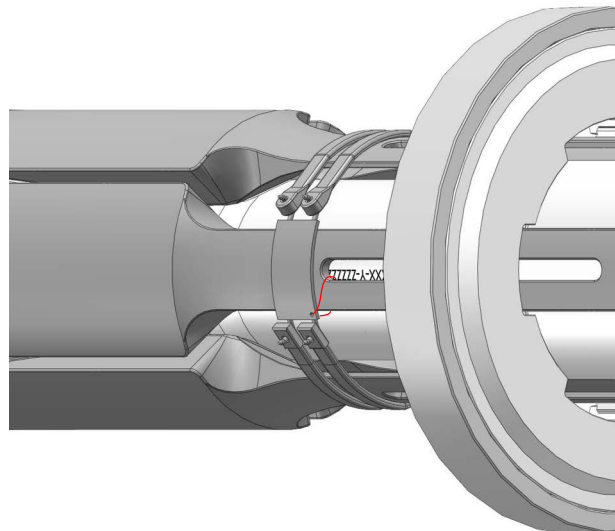
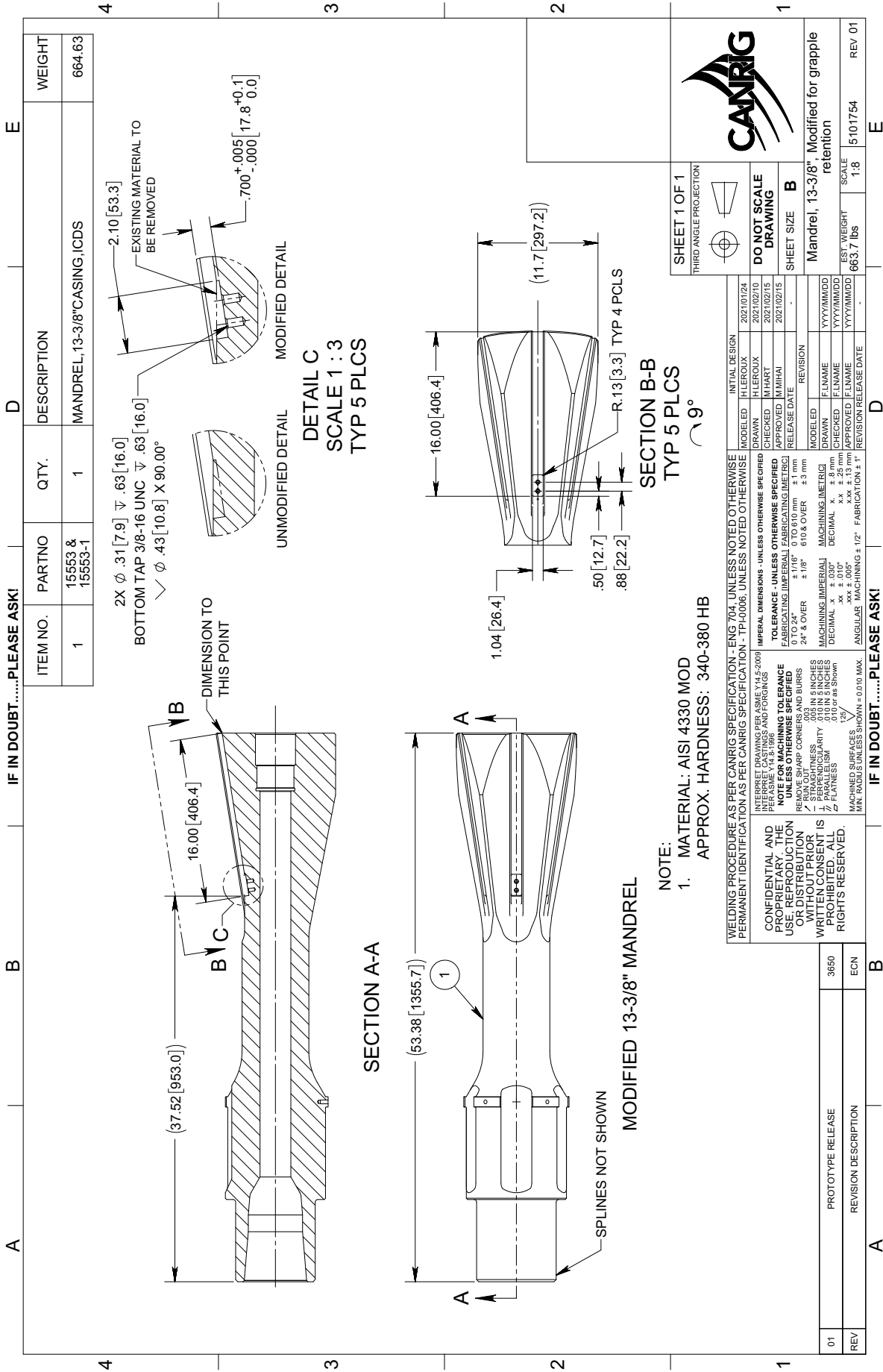


Figure 7

Appendix A - P/N: 5101754 - Mandrel, 13-3/8", Modified for Grapple Retention



ITEM NO.	PARTNO	QTY.	DESCRIPTION	WEIGHT
1	15553 & 15553-1	1	MANDREL, 13-3/8" CASING, ICDS	664.63

REV	DESCRIPTION	DATE	BY	APP
01	PROTOTYPE RELEASE			
	REVISION DESCRIPTION			

INITIAL DESIGN	DATE	DESIGNED	DATE	APPROVED	DATE
H LEROUX	2021/01/24	H LEROUX	2021/02/10	M HART	2021/02/15
H LEROUX	2021/02/10	M HART	2021/02/15		
M HART	2021/02/15				

REVISION	DATE	DESCRIPTION

MODEL	DATE	DESIGNED	DATE	APPROVED	DATE
H LEROUX	2021/01/24	H LEROUX	2021/02/10	M HART	2021/02/15
H LEROUX	2021/02/10	M HART	2021/02/15		
M HART	2021/02/15				

TEST WEIGHT	SCALE	REV
663.7 lbs	1.8	01

SHEET 1 OF 1
 THIRD ANGLE PROJECTION
 DO NOT SCALE DRAWING
 SHEET SIZE B
 Mandrel, 13-3/8", Modified for grapple retention
 SCALE 1.8
 5101754
 REV 01

IF IN DOUBT.....PLEASE ASK!

WELDING PROCEDURE AS PER CANRIG SPECIFICATION - ENG 704, UNLESS NOTED OTHERWISE PERMANENT IDENTIFICATION AS PER CANRIG SPECIFICATION - TPI-0006, UNLESS NOTED OTHERWISE

INTERPRET DRAWING PER ASME Y14.5-2009
 INTERFERE CASTINGS AND FORGINGS
 CONFIDENTIAL AND PROPRIETARY. THE USE, REPRODUCTION OR DISTRIBUTION WITHOUT PREVIOUS WRITTEN CONSENT IS PROHIBITED. ALL RIGHTS RESERVED.

MIN. RADIUS UNLESS SHOWN = 0.010 MAX.

ANGULAR MACHINING ±1/2° FABRICATION ±1°

MACHINING SURFACES
 DECIMAL .xx ± 0.05"
 .xxx ± 0.05"
 .xxxx ± 0.05"
 DECIMAL .xx ± 0.10"
 .xxx ± 0.10"
 .xxxx ± 0.10"
 DECIMAL .xx ± 0.25 mm
 .xxx ± 0.25 mm
 .xxxx ± 0.25 mm

MACHINING MATERIALS
 DECIMAL .xx ± 0.13 mm
 .xxx ± 0.13 mm
 .xxxx ± 0.13 mm

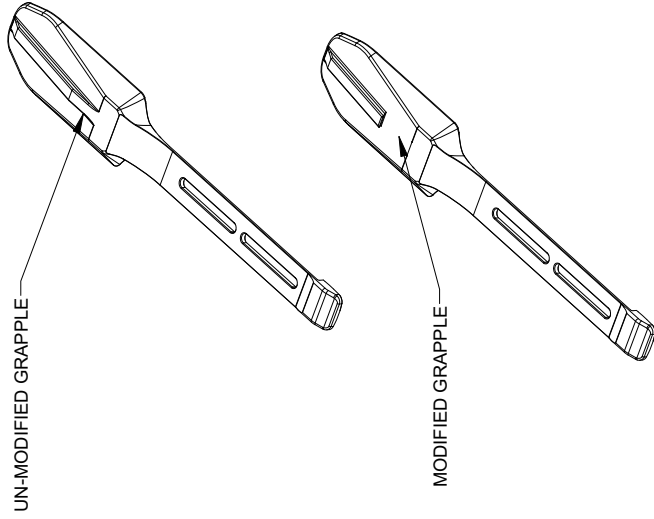
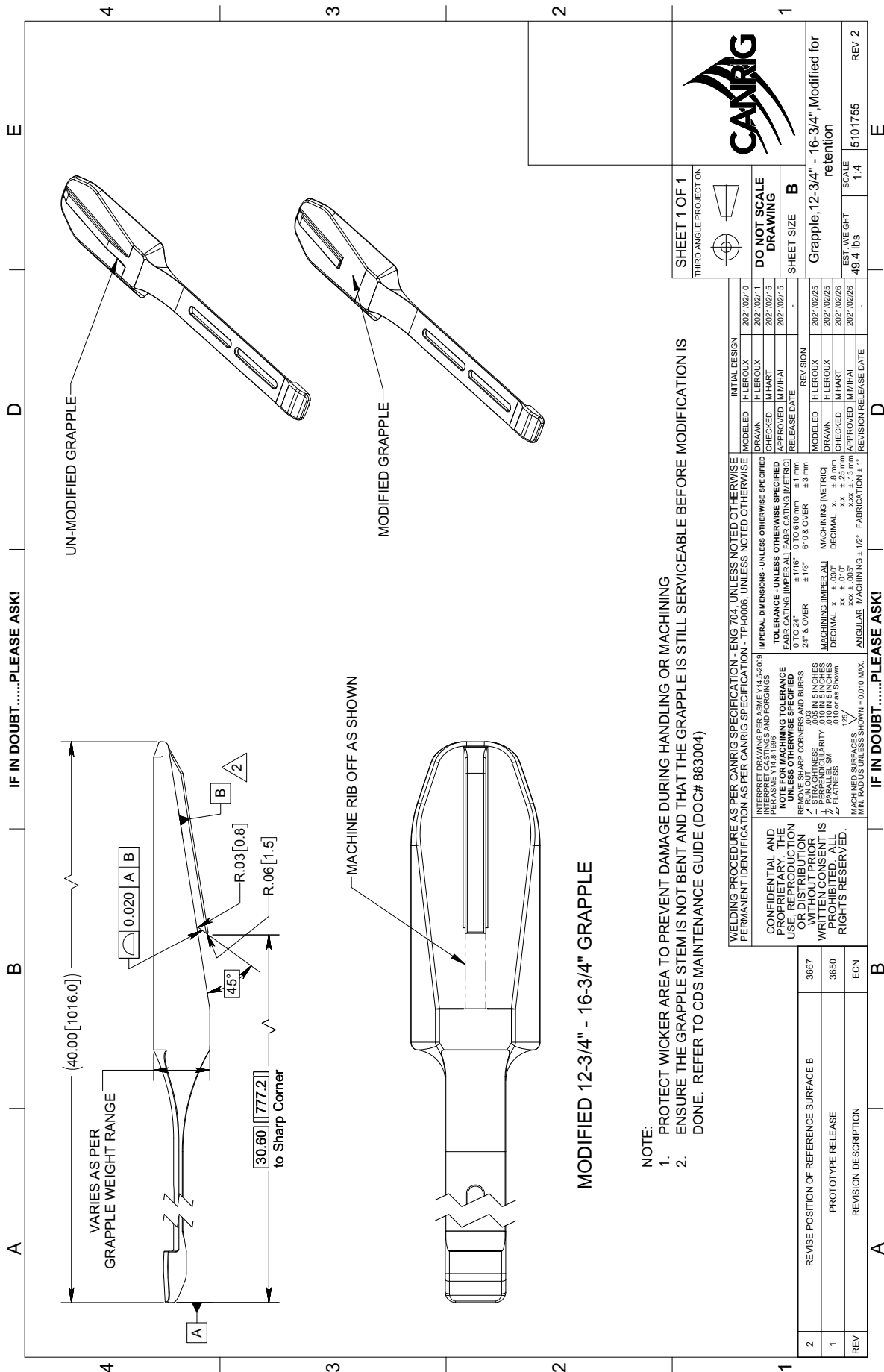
MACHINING TOLERANCES
 DECIMAL .xx ± 0.10"
 .xxx ± 0.10"
 .xxxx ± 0.10"
 DECIMAL .xx ± 0.25 mm
 .xxx ± 0.25 mm
 .xxxx ± 0.25 mm

24° & OVER ± 1/8"
 1/8" ± 1/16"
 1/16" ± 0.010 mm
 0.010" ± 0.010 mm

TOLERANCE - UNLESS OTHERWISE SPECIFIED
 DECIMAL .xx ± 0.10"
 .xxx ± 0.10"
 .xxxx ± 0.10"
 DECIMAL .xx ± 0.25 mm
 .xxx ± 0.25 mm
 .xxxx ± 0.25 mm

IMPERIAL DIMENSIONS - UNLESS OTHERWISE SPECIFIED
 DECIMAL .xx ± 0.10"
 .xxx ± 0.10"
 .xxxx ± 0.10"
 DECIMAL .xx ± 0.25 mm
 .xxx ± 0.25 mm
 .xxxx ± 0.25 mm

Appendix B – P/N: 5101755 – Grapple, 12-3/4" to 16-3/4", Modified for Retention



MODIFIED 12-3/4" - 16-3/4" GRAPPLE

- NOTE:
1. PROTECT WICKER AREA TO PREVENT DAMAGE DURING HANDLING OR MACHINING
 2. ENSURE THE GRAPPLE STEM IS NOT BENT AND THAT THE GRAPPLE IS STILL SERVICEABLE BEFORE MODIFICATION IS DONE. REFER TO CDS MAINTENANCE GUIDE (DOC# 883004)

SHEET 1 OF 1

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

SHEET SIZE B

Grapple, 12-3/4" - 16-3/4" Modified for retention

TEST WEIGHT 49.4 lbs

SCALE 1:4

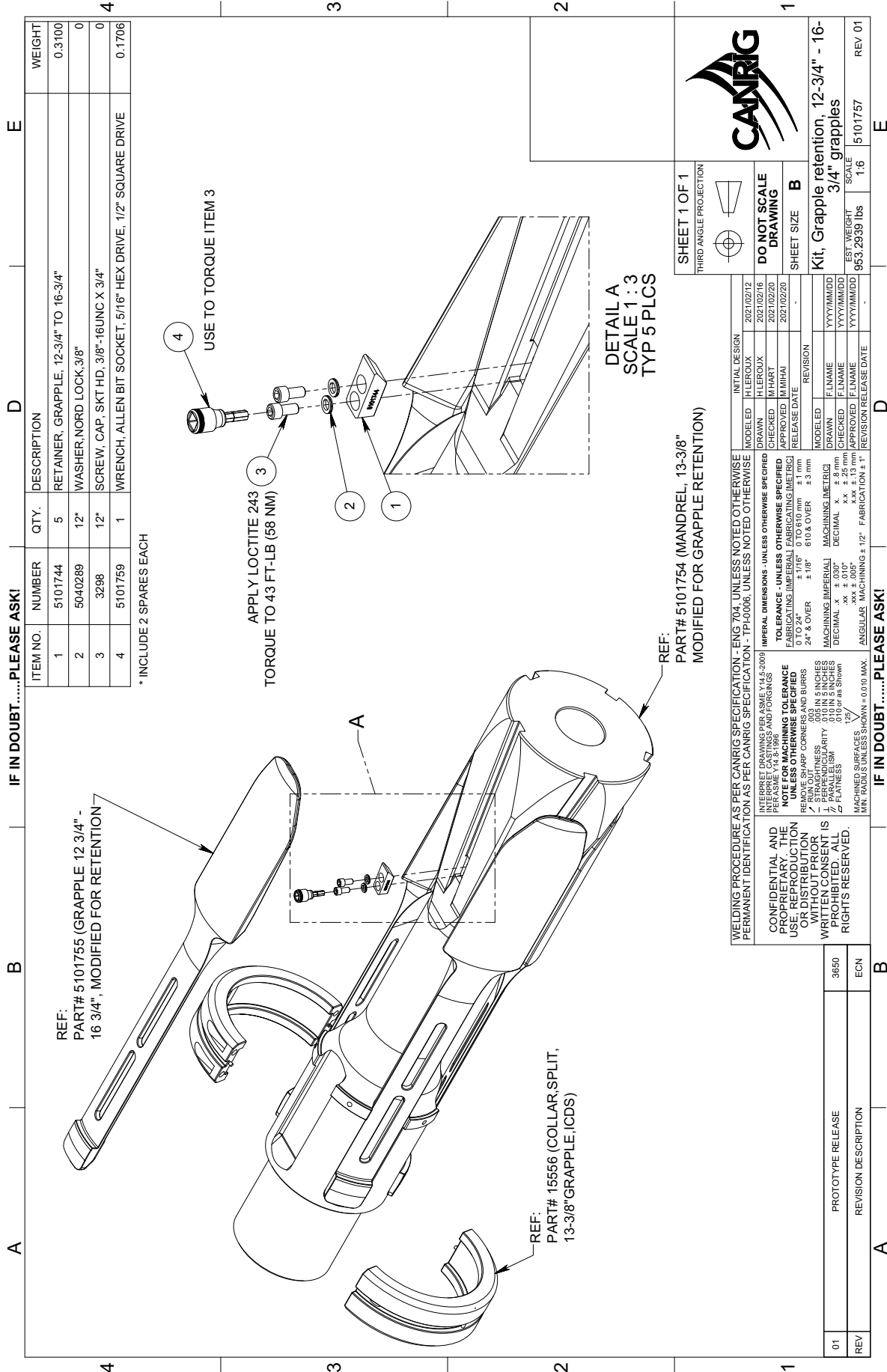
REV 2 5101755 REV 2

REV	REVISION DESCRIPTION	ECN	DATE	BY	APP'D	DATE	BY	APP'D
2	REVISE POSITION OF REFERENCE SURFACE B	3867	2021/02/25			2021/02/25		
1	PROTOTYPE RELEASE	3850	2021/02/25			2021/02/25		
REV	REVISION DESCRIPTION	ECN	DATE	BY	APP'D	DATE	BY	APP'D

MODEL	DATE	DESIGNER	DATE	DESIGNER
MODELED	2021/02/25	H LEROUX	2021/02/25	H LEROUX
DRAWN	2021/02/25	H LEROUX	2021/02/25	H LEROUX
CHECKED	2021/02/25	M HART	2021/02/25	M HART
APPROVED	2021/02/25	M HART	2021/02/25	M HART
RELEASE DATE	2021/02/25			

WELDING PROCEDURE	AS PER CANRIG SPECIFICATION - ENG 704, UNLESS NOTED OTHERWISE
PERMANENT IDENTIFICATION	AS PER CANRIG SPECIFICATION - TP-0006, UNLESS NOTED OTHERWISE
INTERPRET CASTINGS AND FORGINGS	PER ASME Y14.5-2009
IMPERIAL DIMENSIONS	UNLESS OTHERWISE SPECIFIED
TOLERANCE	UNLESS OTHERWISE SPECIFIED
FINISH	UNLESS OTHERWISE SPECIFIED
RA	UNLESS OTHERWISE SPECIFIED
STRAIGHTNESS	UNLESS OTHERWISE SPECIFIED
PARALLELISM	UNLESS OTHERWISE SPECIFIED
PERPENDICULARITY	UNLESS OTHERWISE SPECIFIED
PLATNESS	UNLESS OTHERWISE SPECIFIED
MACHINED SURFACES	UNLESS OTHERWISE SPECIFIED
MIN. RADIUS UNLESS SHOWN	= 0.010 MAX.

Appendix C – P/N: 5101757 – Grapple Retention Kit drawing



ITEM NO.	NUMBER	QTY.	DESCRIPTION
1	5101744	5	RETAINER, GRAPPLE, 12-3/4" TO 16-3/4"
2	5040289	12"	WASHER, NORD LOCK, 3/8"
3	3298	12"	SCREW, CAP, SKT HD, 3/8"-16UNC X 3/4"
4	5101759	1	WRENCH, ALLEN BIT SOCKET, 5/16" HEX DRIVE, 1/2" SQUARE DRIVE

*INCLUDE 2 SPARES EACH

IF IN DOUBT.....PLEASE ASK!

REF:
PART# 5101755 (GRAPPLE 12 3/4" - 16 3/4", MODIFIED FOR RETENTION)

REF:
PART# 15556 (COLLAR, SPLIT, 13-3/8" GRAPPLE, ICDS)

REF:
PART# 5101754 (MANDREL, 13-3/8" MODIFIED FOR GRAPPLE RETENTION)

DETAIL A
SCALE 1 : 3
TYP 5 PLCS

SHEET 1 OF 1
THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

SHEET SIZE **B**

CANRIG

Kit, Grapple retention, 12-3/4" - 16-3/4" grapples

TEST WEIGHT	SCALE	REV 01
963,2939 lbs	1,6	5101757

INITIAL DESIGN	MODELED	DATE
HLEROUX	2021/02/12	
HLEROUX	2021/02/16	
M/HART	2021/02/20	
M/HART	2021/02/20	
REVISION		
MODEL	F.LNAME	YYYYMMDD
DRAWN	F.LNAME	YYYYMMDD
CHECKED	F.LNAME	YYYYMMDD
APPROVED	F.LNAME	YYYYMMDD
RELEASE DATE	REVISION	

WELDING PROCEDURE AS PER CANRIG SPECIFICATION - ENG 704, UNLESS NOTED OTHERWISE PERMANENT IDENTIFICATION AS PER CANRIG SPECIFICATION - TP-0006, UNLESS NOTED OTHERWISE

INTERPRET DRAWING PER ASME Y14.5-2009

INTERFERE CASTINGS AND FORGINGS

NOTE FOR MACHINING TOLERANCE UNLESS OTHERWISE SPECIFIED

REVISIONS

STRAIGHTNESS .005 IN 5 INCHES

PARALLELISM .010 IN 5 INCHES

PLATNESS .010 IN 5 INCHES

MACHINED SURFACES MIN. RADIUS UNLESS SHOWN = 0.010 MAX.

ANGULARS MACHINING ±1/2° FABRICATION ±1°

PROTOTYPE RELEASE	REVISION DESCRIPTION
3850	ECN