

- 3. FINISHES:
- A. "STANDARD" FLOTRON FINISHES (SHOWN) CLASS 10K (ISO 7 CLEANROOM COMPATIBLE FINISHES) FLOTRON BLUE POWDER COATED END FRAMES, GEARBOX PAINTED FLOTRON BLUE, NICKEL PLATED COMPONENTS (NO ZINC), STAINLESS STEEL, OR BLACK OXIDE FASTENERS AND MISC. HARDWARE. LUBRICATE CASTER SWIVEL BEARINGS AND TRUNNION NEEDLE ROLLER BEARINGS WITH STA-LUBE SL3131 HEAVY DUTY DRUM BRAKE GREASE. (KRYTOX GPL 207 FOR FASTENERS THAT DO NOT HAVE TORQUE CHART) B. "C" FINISH - CLASS 1K (ISO 6 CLEANROOM COMPATIBLE FINISHES) - SKY WHITE POWDER COATED END FRAMES, GEARBOX PAINTED GLOSS WHITE EPOXY, NICKEL PLATED COMPONENTS (NO ZINC), STAINLESS STEEL
- FASTENERS AND MISC. HARDWARE OR VERY MINIMAL BLACK OXIDE FASTENERS. OPEN-ENDED TUBES NICKEL PLATED (EXCEPT FORKLIFT TUBES). KRYTOX GPL 207 LUBRICANT ON CASTER SWIVEL BEARINGS AND TRUNNION NEEDLE ROLLER BEARINGS. IF REQUESTED BY CUSTOMER - ALL BLACK OXIDE FASTENERS SHOULD BE STRIPPED AND POST BAKED AT 375°F FOR 4 HOURS WITHIN 1 HR OF STRIPPING OF BLACK OXIDE TO PREVENT HYDROGEN EMBRITTLEMENT. AFTER STRIPPING, APPLY NEDOX NH1 COATING OF .0001 - .0002 THICKNESS AND POST BAKE AT 375°F FOR 4 HRS FOR HYDROGEN EMBRITTLEMENT RELIEF.
- 2. LOAD RATING: 3,200 LBS @ 3.75" MAX ECCENTRICITY (FOR 60:1 RATIO GEARBOX) CONSIDERING A SIMULTANEOUS 1/2G SIDE LOAD (WORST CASE DIRECTION)
- AND A 1G VERTICAL LOAD. SFy=3 & SFult=5.
- a) MAX TORQUE ON 60:1 RATIO SR GEARBOX: 3.75" MAX CG OFFSET X 3,200 LB MAX PAYLOAD = 12,000 IN-LBS (2,000 IN-LBS MAX EASY CRANK)
- b) MAX TORQUE ON 300:1 RATIO (DR3) GEARBOX: 3.75" MAX CG OFFSET X 3,200 LB MAX PAYLOAD = 12,000 IN-LBS (6,000 IN-LBS MAX EASY CRANK)
- c) MAX TORQUE ON 600:1 RATIO (DR6) GEARBOX: 3.75" MAX CG OFFSET X 3,200 LB MAX PAYLOAD = 12,000 IN-LBS (12,000 IN-LBS MAX EASY CRANK)
- . WEIGHT IN TITLE BLOCK INCLUDES 3,200 LB PAYLOAD.

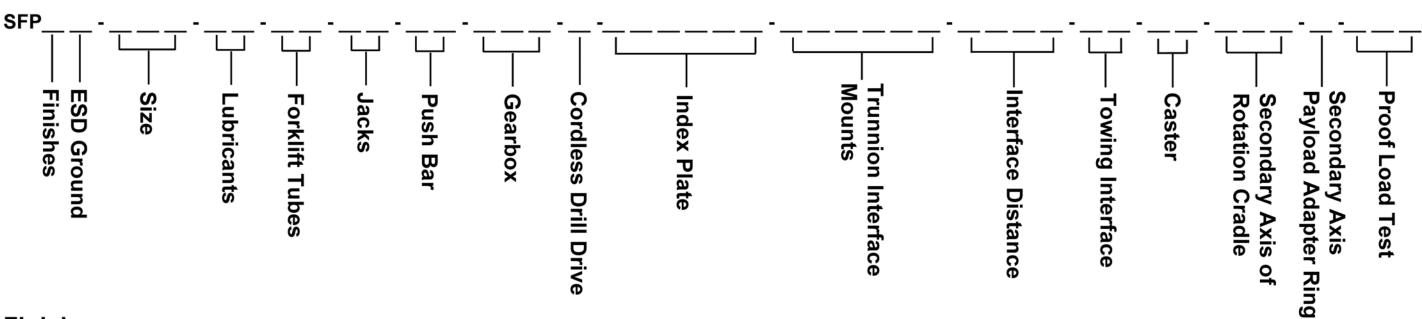
NOTES:

LATERAL TIPOVER FOR Ø6" **STANDARD** CASTER (SHOWN) WITH 3,200 LB PAYLOAD: 16.50 / 31.25 = .53G LATERAL TIPOVER FOR Ø8" C1 & C2 CASTERS WITH 3,200 LB PAYLOAD: 16.50 / 33.88 = .49G (NOTE: STABILITY WILL CHANGE DEPENDING ON "B" DISTANCE AND OPTIONS CHOSEN. CONTACT FLOTRON IF YOU NEED TO KNOW STABILITY OF YOUR SPECIFIC CONFIGURATION)

PROPRIETARY	UNLESS OTHERWISE DIMENSIONS ARE II	FLOTRON® 2630 PROGRESS STREET VISTA, CALIFORNIA 92081												
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reproduced in any way other	TOLERANCING PER ASI	INTERPRET DIMENSIONING AND TOLERANCING PER ASME Y15.5-2018			SFP-847									
than for the particular purpose	INTERPRET DWG. PER	ASME Y14.100												
for which it is provided, and			SCALE	SIZE	DRAWING NO.									
when said purpose has been														
fulfilled, it should be destroyed			1.0	D	0000-0001101									
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SFP-800 SERIES OPTIONS COMPATIBILITY MATRIX																						
		SIZE		FORKLIFT TUBES		JACKS		GEARBOX		CORDLESS HAND DRILL		INDEX PLATE			TOWING INTERFACE				SECONDARY AXIS OF ROTATION CRADLE			
		SFP-847	SFP-853	SFP-862	BLANK	F1	BLANK	J5	BLANK	DR3	DR6	BLANK	D	BLANK	IND15	INDS15	BLANK	T1	T2	T3	BLANK	SA1-SA8
SIZE	SFP-847																					X
	SFP-853						-															
	SFP-862						-														-	+
FORKLIFT TUBES	BLANK - NO TUBES						├) ((F)		
	F1						-													X (5)		-
JACKS J5	BLANK - NO JACKS																					
	J5						-													X (4)		
GEARBOX DR3	BLANK - STANDARD						<u> </u>				-		Х									-
	DR3												-									-
	DR6											-										
CORDLESS HAND DRILL BLA	BLANK - NO DRILL																					-
	D								X	-					-	-						
	BLANK - NO INDEX						<u> </u>															
INDEX PLATE	IND15												-									
	INDS15												-									
TOWING INTERFACE	BLANK - NO TOW																			ć		
	T1																					
	T2																					
	T3					X (5)		X (4)														
SECONDARY AXIS OF	BLANK - NO CRADLE																					
ROTATION CRADLE	SA1-SA8	X							-	-		-										
NOTES: 1. OPTIONS SHOWN AS X ARE NOT CON					OMPATIBLE WITH OTHER OPTIONS																	
2. OPTIONS SHOWN AS - ARE COMPATIBLE WITH OTHER OPTIONS BUT NOT RECOMMENDED. CONTACT FLOTRON FOR FURTHER DETAILS AND EXPLANATION OF CONCERNS/RISKS																						
3. OPTIONS NOT SHOWN IN THIS MATRIX ARE COMPATIBLE WITH ALL OTHER OPTIONS																						
4. JACKS WITH T3 OPTION ARE COMPATIBLE WITH SFP-862 ONLY (NOT COMPATIBLE WITH SFP-847 & SFP-853)																						
	5. TOWBAR (T3) OPTION	I WITH FO	RKLIFT TU	JBES (F1) C	COMPATIBL	E WITH	SFP-847 ON	NLY (NOT	COMPATI	BLE WITH	SFP-853 &	SFP-862)										

SHEET 2 OF 9



Finishes

(blank)-Standard finishes (No Zinc)

C - - - Clean room finishes (See proposal drawing for details)

ESD Ground

(blank) - No ESD ground

E - - - - Ground lug and drag chain for use in EPA's

Size

847 - 47" Wide frame; 26"-32" max payload swing radius; 3,200 lb. capacity

853 - 53" Wide frame; 32"-42" max payload swing radius; 3,200 lb. capacity

862 - 62" Wide frame; 42"-54" max payload swing radius; 3,200 lb. capacity

Lubricants

(blank) - Standard lubricants

L1 - - - Jacks, trunnion, & caster swivel bearings lubricated with Krytox GPL 207

L2 - - - Jacks, trunnion & caster swivel bearings lubricated with Braycote 601EF

NOTE: "C" finish includes L1 Lubricants except in jack screw threads

Forklift Tubes

(blank) - No Forklift Tubes

F1 - - - - Frame Mounted Forklift Tubes (Not available for "B" Distances over 150"). Inside of tubes not fully plated (Even for "C" finish).

Jacks

(blank) – No jacks provided

J2 - - - Jacks with crank handles opposite of mounting plate

J3 - - - - Jacks with crank handles pointing towards ends of fixture J4 - - - - Jacks with crank handles pointing towards center of fixture

Push Bar

(blank) - No push bar

P1 - - - Gearbox mounted push bar for 847 & 853.

End frame mounted push bar for 862.

Gearbox

(blank) - Standard 60:1 Low Backlash Gearbox

DR3 - - - 300:1 Low Backlash, Stairstep Resistant Gearbox. Recommended for torques higher than 2,000 in-lbs

DR6 - - - 600:1 Low Backlash, Stairstep Resistant Gearbox.
Recommended for torques higher than 6,000 in-lbs
Must select when using drill drive "D" option.

Cordless Drill Drive Input

(blank) - No hand drill

D - - - - Battery powered hand drill mounted to gearbox input shaft (Must select DR6 gearbox option)

Index Plate

(blank) - - No index plate

IND15 - - 15° index plate

INDS15 - 15° index plate with index stops

NOTE: Special index plate hole spacing available upon request.

Proof Load Test

(blank) - No proof load test

PLT - - - Standard proof load test (includes deliverable report)

Secondary Axis Payload Adapter Ring

(blank) – No adapter ring for secondary axis of rotation cradle.

Standard SA interface comes with 36X 1/4-28 threaded holes on a Ø24" bolt circle (ESPA Grande)

R - - - - Adapter ring to convert SA interface holes to 36X Ø.281 thru holes on a Ø24" bolt circle (ESPA Grande)

Secondary Axis of Rotation Cradle

(blank) - No secondary axis of rotation

SA1 - - - Secondary axis of rotation (Bolt Position 1)

SA2 - - - Secondary axis of rotation (Bolt Position 2)

SA3 - - - Secondary axis of rotation (Bolt Position 3)

SA4 - - - Secondary axis of rotation (Bolt Position 4)

SA5 - - - Secondary axis of rotation (Bolt Position 5)

SA6 - - - Secondary axis of rotation (Bolt Position 6) SA7 - - - Secondary axis of rotation (Bolt Position 7)

SA8 - - - Secondary axis of rotation (Bolt Position 8)

NOTE: NOT COMPATIBLE WITH SIZE 847.

See proposal drawing to determine correct bolt position. Bolt positions can be changed in the field, but bolt position selected will be the bolt position fixture is shipped with. Must select B120 interface distance when specifying standard length cradle. Special length cradles available upon request in increments of 20". To get most capability out of SA option and for best operator experience, "DR6" gearbox with drill drive input ("D" Option) is highly recommended. Option reduces load capacity to 2,500 lbs cantilevered 30" max from interface.

Caster

(blank) - Standard Ø6" nylon casters with brakes & swivel locks (no steering bars)

C1 - - - Ø8" nylon casters with brakes & swivel locks (no steering bars)
C2 - - - Ø8" poly. casters with steering bars, brakes, and swivel locks

Towing Interface

(blank) - No towing interface

T1 - - - - Removable lunette ring towing interface (attaches to main beam)

T2 - - - Removable ball coupler towing interface (attaches to main beam)

T3 - - - Removable tow bar (attaches to end frames)

Interface Distance

B"XXX" - Main Beam length where "XXX"= length in inches between trunnion interface mounts. (1" increments within the following range)

MODEL MIN MAX SFP-847 25" 280" SFP-853 42" 280" SFP-862 55" 280"

Trunnion Interface Mounts

P12 - - - - 9" x 12" mounting plate with 8 thru holes

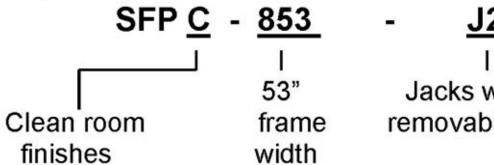
P12/A30 - - P12 (8 bolts 8" x 12") mounting plate and standard 30" long angle (no mounting holes) bolted to the P12.

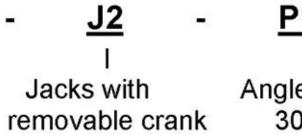
P12/B30 - - P12 (8 bolts 8" x 12") mounting plate and 30" long angle (with standard mounting hole pattern) bolted to the P12.

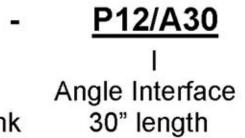
NOTE: Special interface angle lengths available upon request

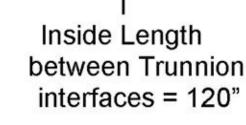
SFP-800 SERIES CREATING A MODEL NUMBER

Example:





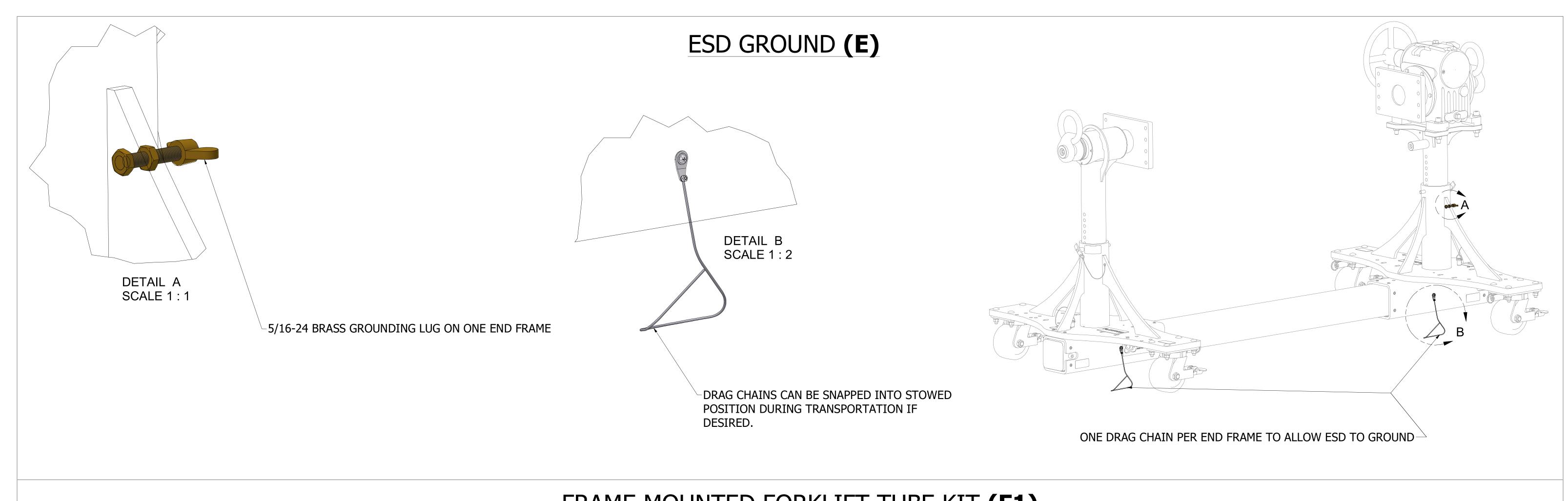




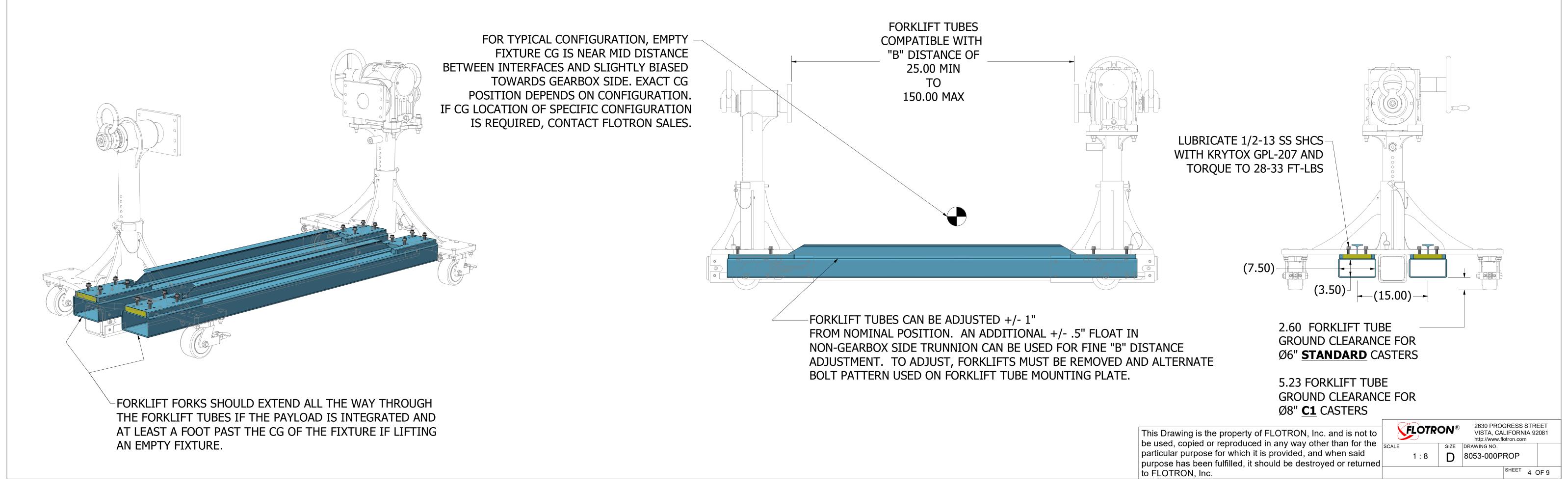
B 120

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FRAME MOUNTED FORKLIFT TUBE KIT (F1)

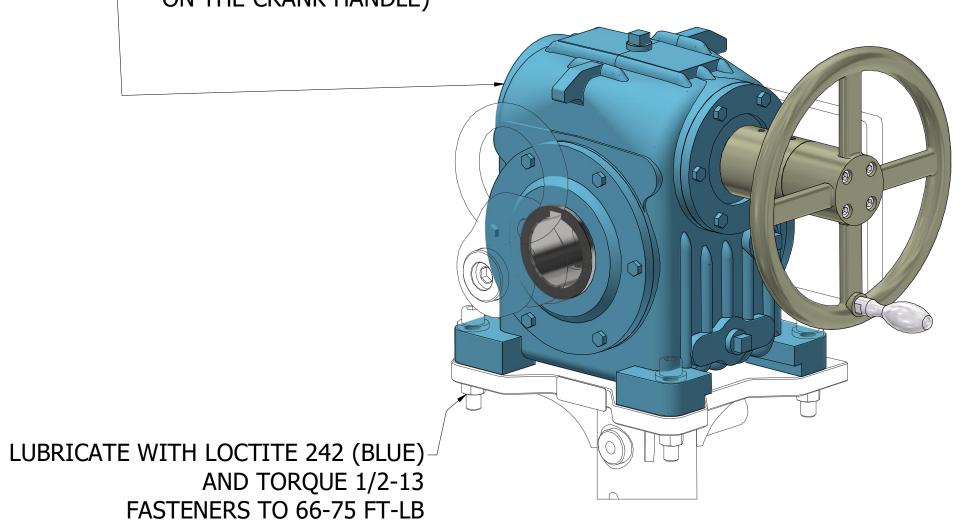


GEARBOX OPTIONS FOR HAND CRANK

(STANDARD) GEARBOX OPTION (60:1)

NON-BACKDRIVING 60:1 RATIO SINGLE STAGE WORM GEAR DRIVE.

STANDARD GEARBOX TORQUE CAPACITY: 12,000 IN-LBS
STANDARD GEARBOX MAX EASY CRANK TORQUE: 2,000 IN-LBS
(EASY CRANK IS DEFINED AS A 12 LB INPUT FORCE
ON THE CRANK HANDLE)



(DR3) GEARBOX OPTION (300:1) FOR HIGH ECCENTRICITY HAND CRANK APPLICATION

NON-BACKDRIVING WITH 300:1 RATIO DUAL STAGE WORM GEAR DRIVE.

DR3 GEARBOX TORQUE CAPACITY: 12,000 IN-LBS-DR3 GEARBOX MAX EASY CRANK TORQUE: 6,000 IN-LBS (EASY CRANK IS DEFINED AS A 12 LB INPUT FORCE ON THE CRANK HANDLE)

FLYWHEEL COMES STANDARD WITH 300:1 RATIO GEARBOX TO PREVENT STAIR-STEPPING (STICK-SLIP) IN GEARBOX FOR HIGH INERTIA PAYLOADS.

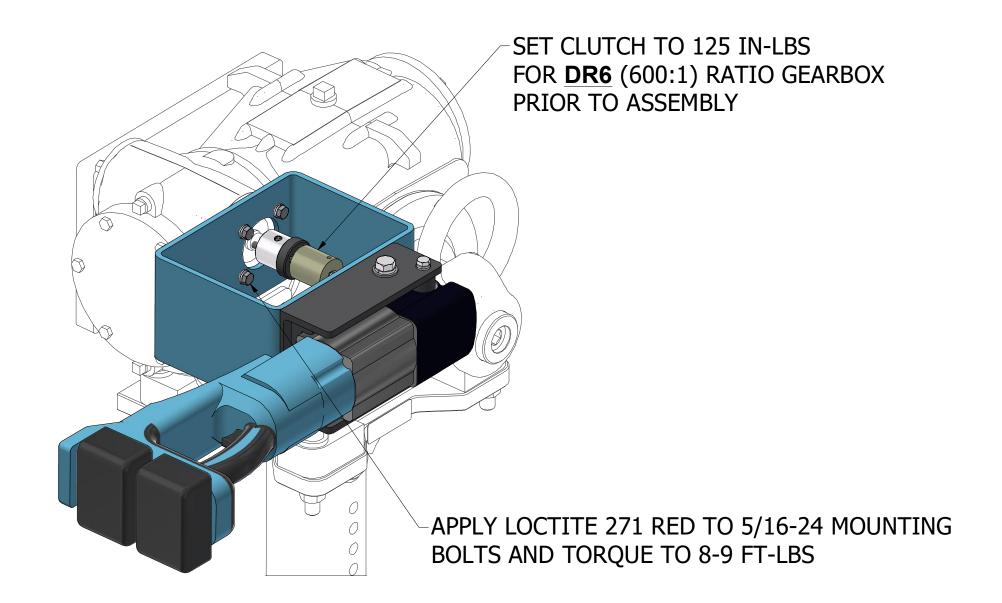
LUBRICATE WITH LOCTITE 242 (BLUE) -AND TORQUE 1/2-13 FASTENERS TO 66-75 FT-LB

SET CLUTCH TO 250 IN-LBS
FOR DR3 (300:1) RATIO GEARBOX
PRIOR TO ASSEMBLY

-LBS
-LBS
RCE
DLE)

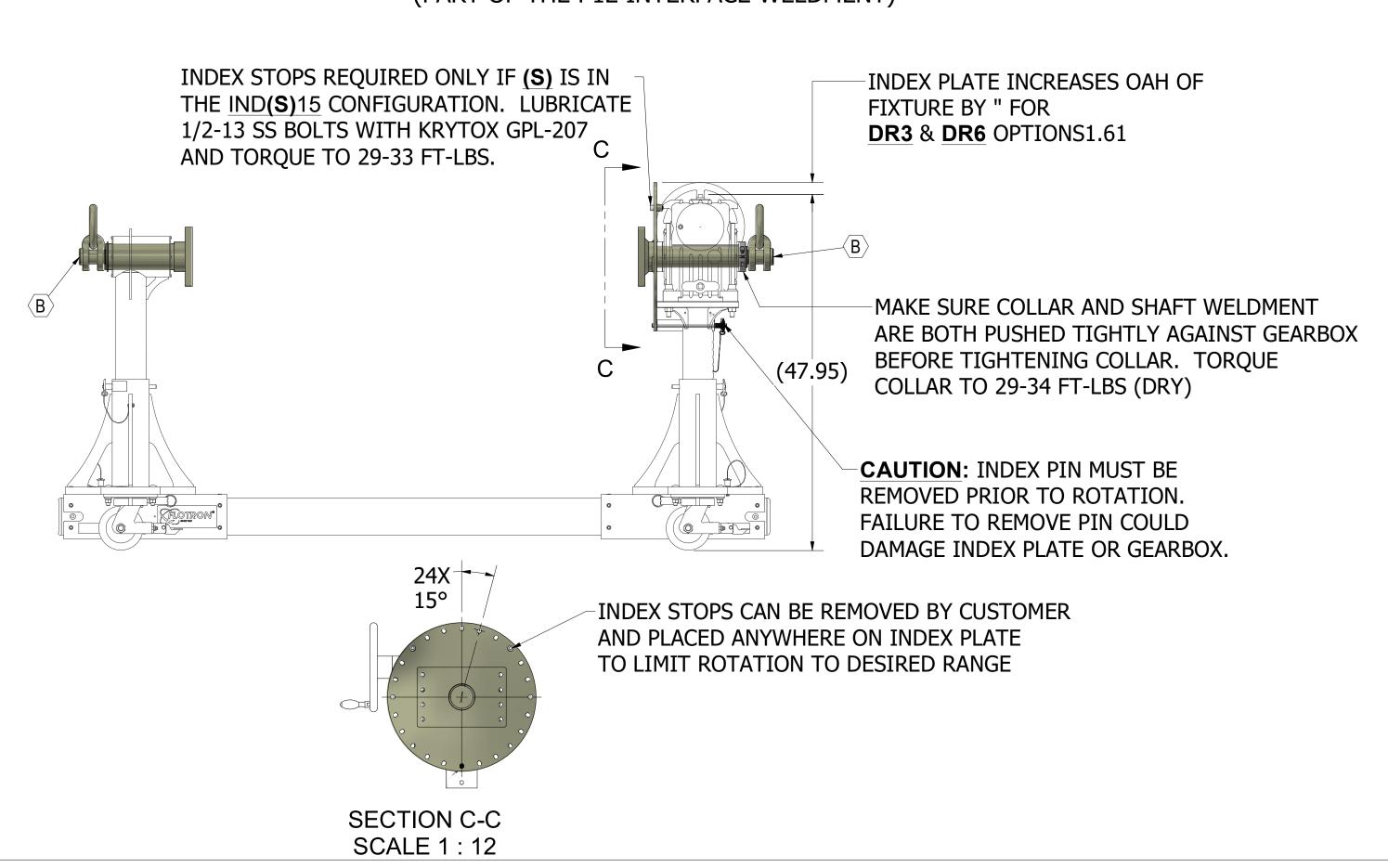
DRILL DRIVE OPTION (D) WITH (DR6) GEARBOX

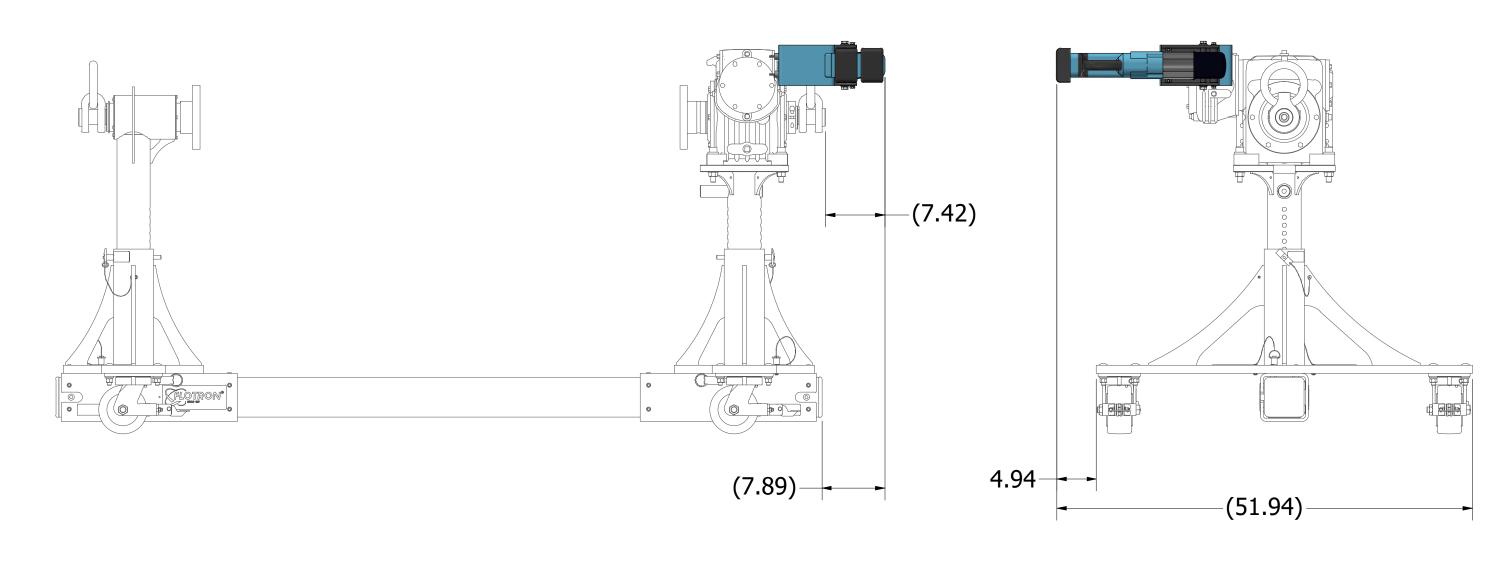
WHEN **D** OPTION IS CHOSEN, **DR6** GEARBOX WILL HAVE A 600:1 RATIO. DRILL MAX RPM IS 300 RESULTING IN A MAX OUTPUT PAYLOAD ROTATION OF .5 RPM. WITH **D** OPTION, FULL GEARBOX TORQUE CAPACITY CAN BE USED. COMES STANDARD WITH CLUTCH BETWEEN THE GEARBOX AND HAND CRANK TO PREVENT OVER-TORQUE OF GEARBOX IN CASE INDEX PIN WAS NOT REMOVED BEFORE ROTATION OR PAYLOAD ECCENTRICITY IS TOO HIGH.



(IND(S)15) INDEX PLATE WITH OPTIONAL STOPS (S)

(PART OF THE P12 INTERFACE WELDMENT)



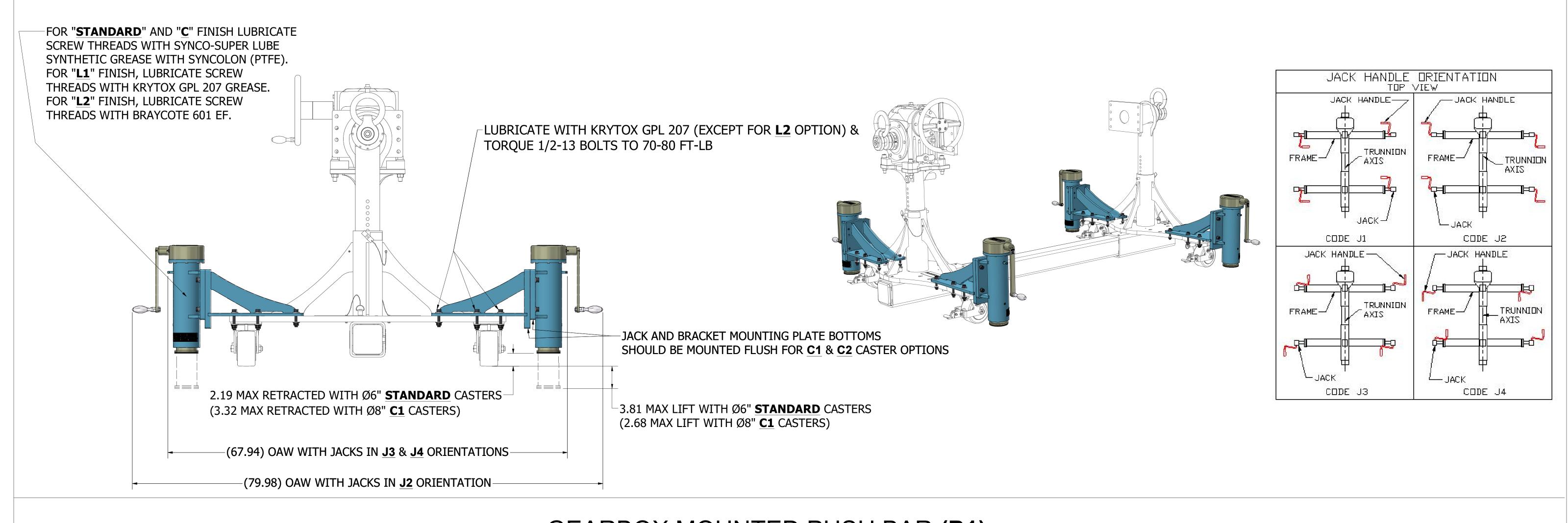


NOTE: DRILL DRIVE INCREASES OVERALL LENGTH AND WIDTH OF FIXTURE BY DIMENSIONS INDICATED

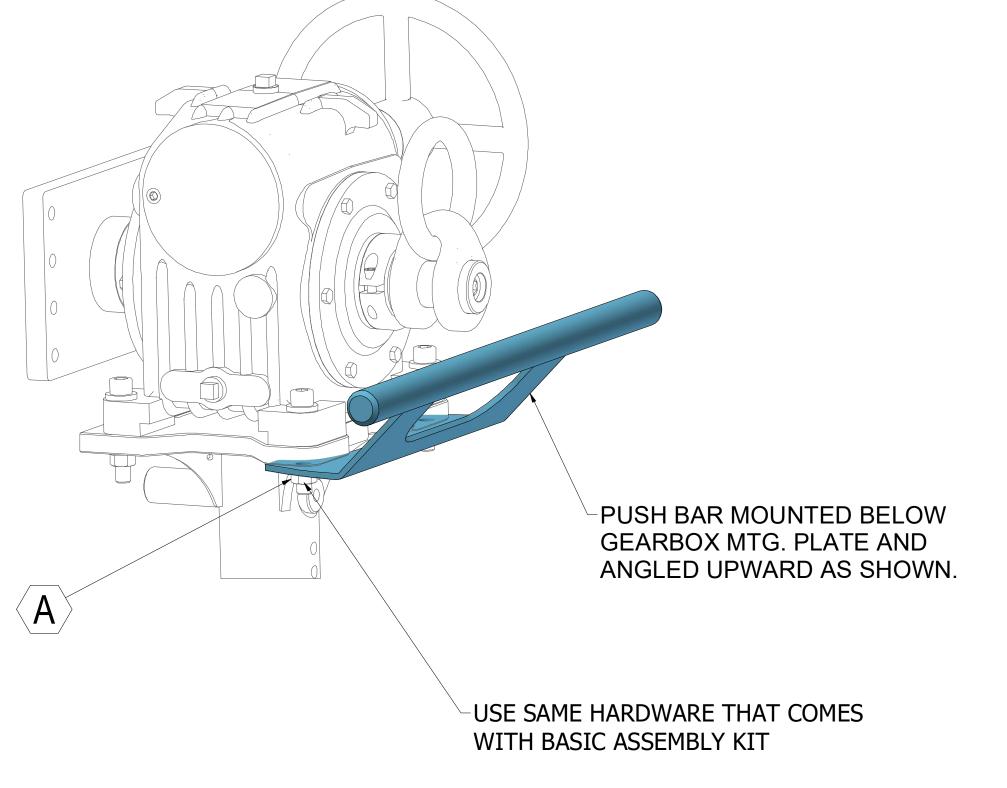
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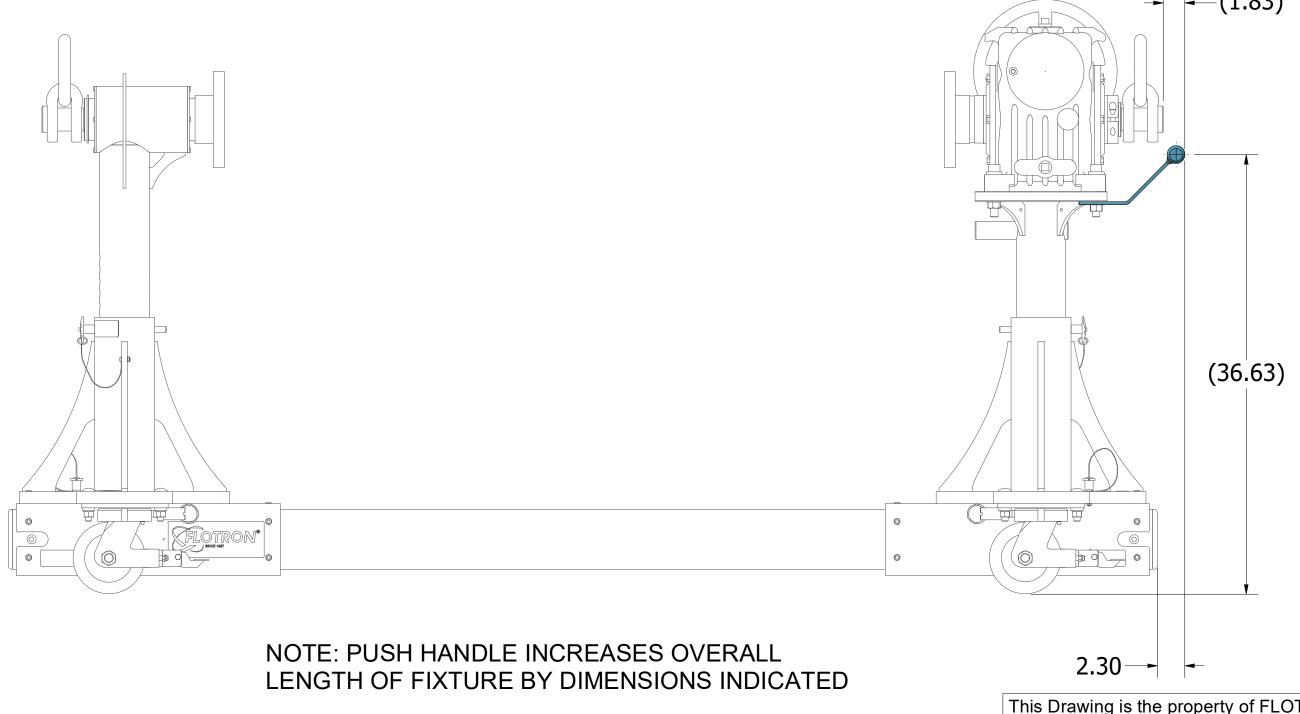


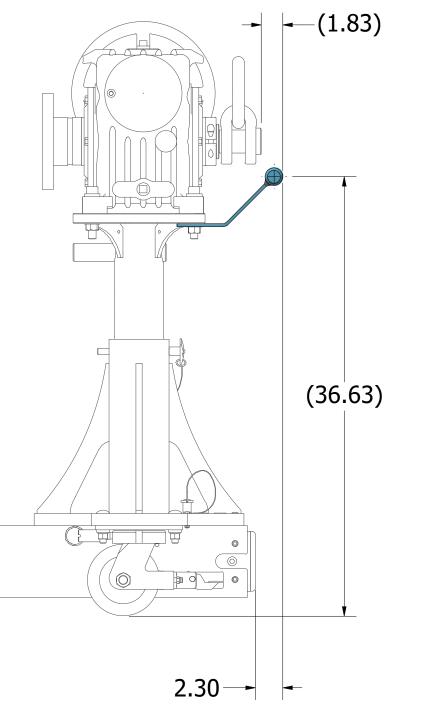
STABILIZING/LEVELING JACKS (J2, J3, J4)



GEARBOX MOUNTED PUSH BAR (P1)



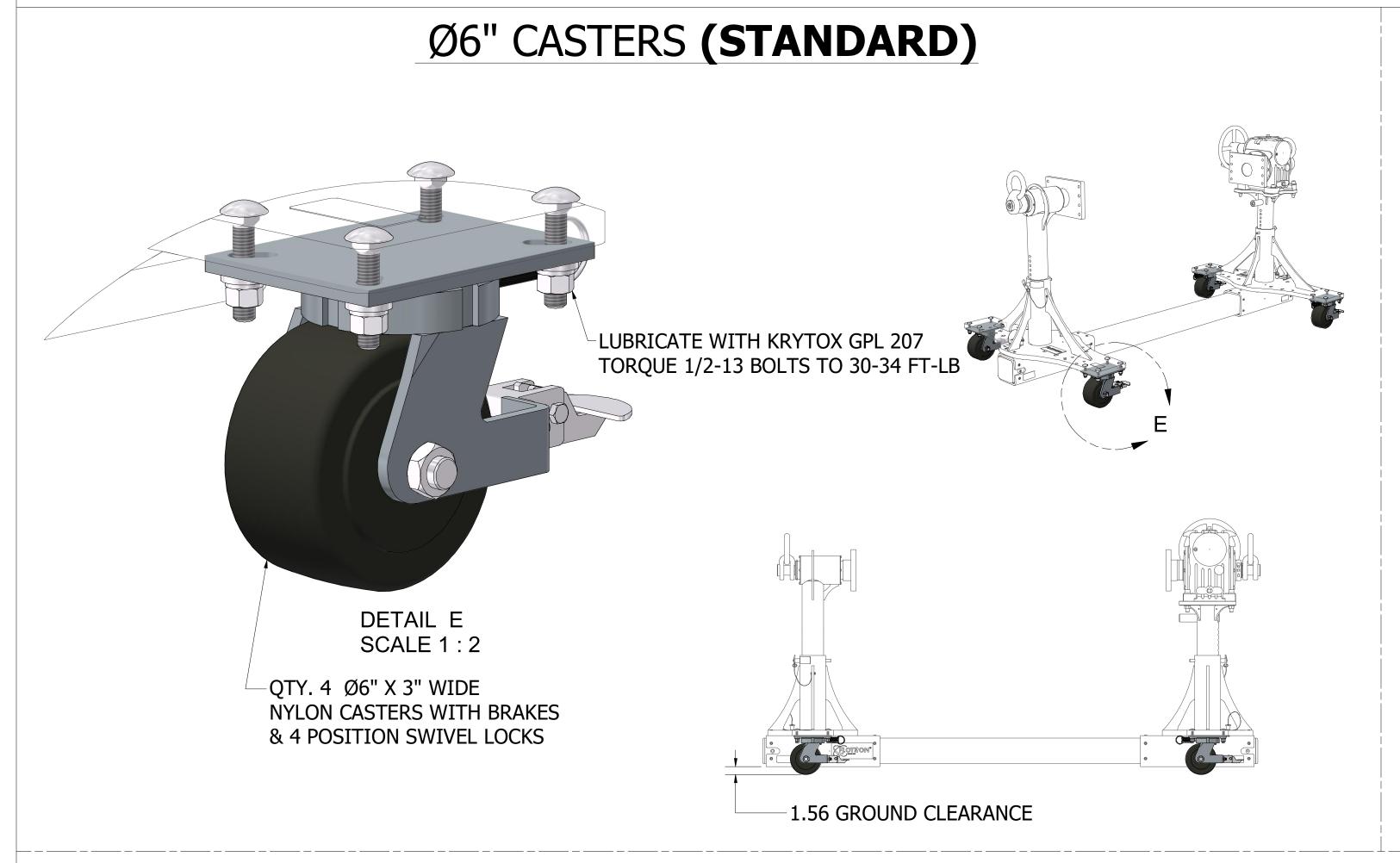


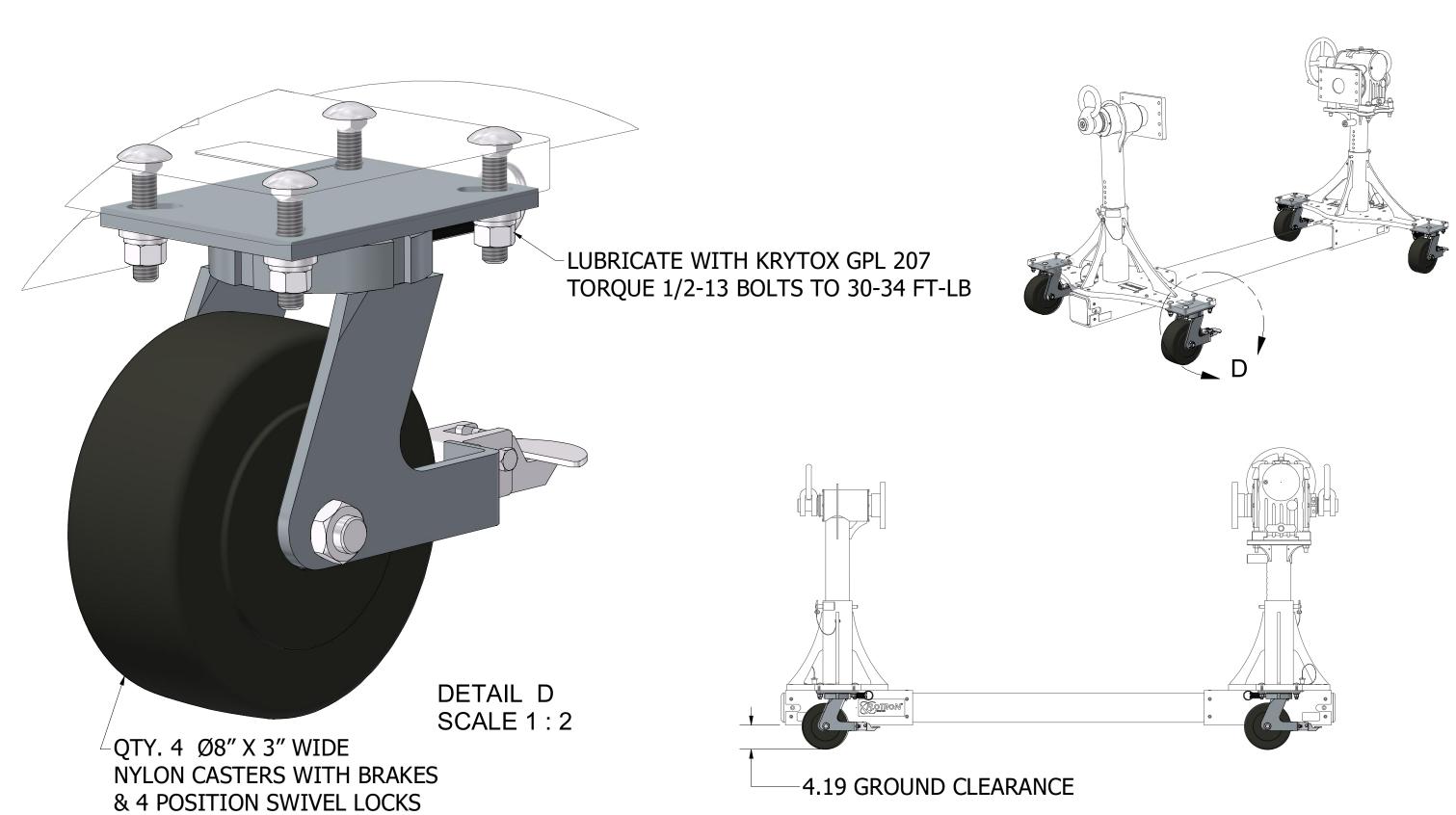


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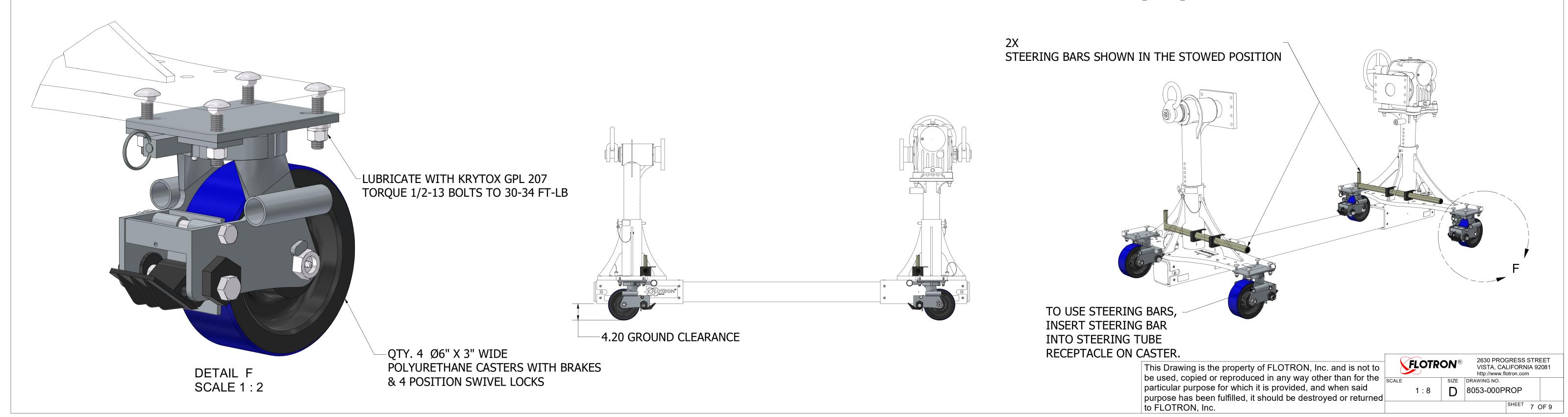
CASTER OPTIONS





Ø8" CASTERS (C1)

Ø8" POLYURETHANE CASTERS WITH STEERING TUBES/BARS (C2)



TRUNNION INTERFACE MOUNT OPTIONS

P12 PAYLOAD INTERFACE

(TYPICAL BOTH SIDES)

P12/B30 PAYLOAD INTERFACE

(WITH STANDARD BOLT HOLE PATTERN AND MACHINED MOUNTING SURFACE) (TYPICAL BOTH SIDES) ANGLE MATERIAL: 6061-T6 ALUMINUM FINISH: HARD ANODIZED

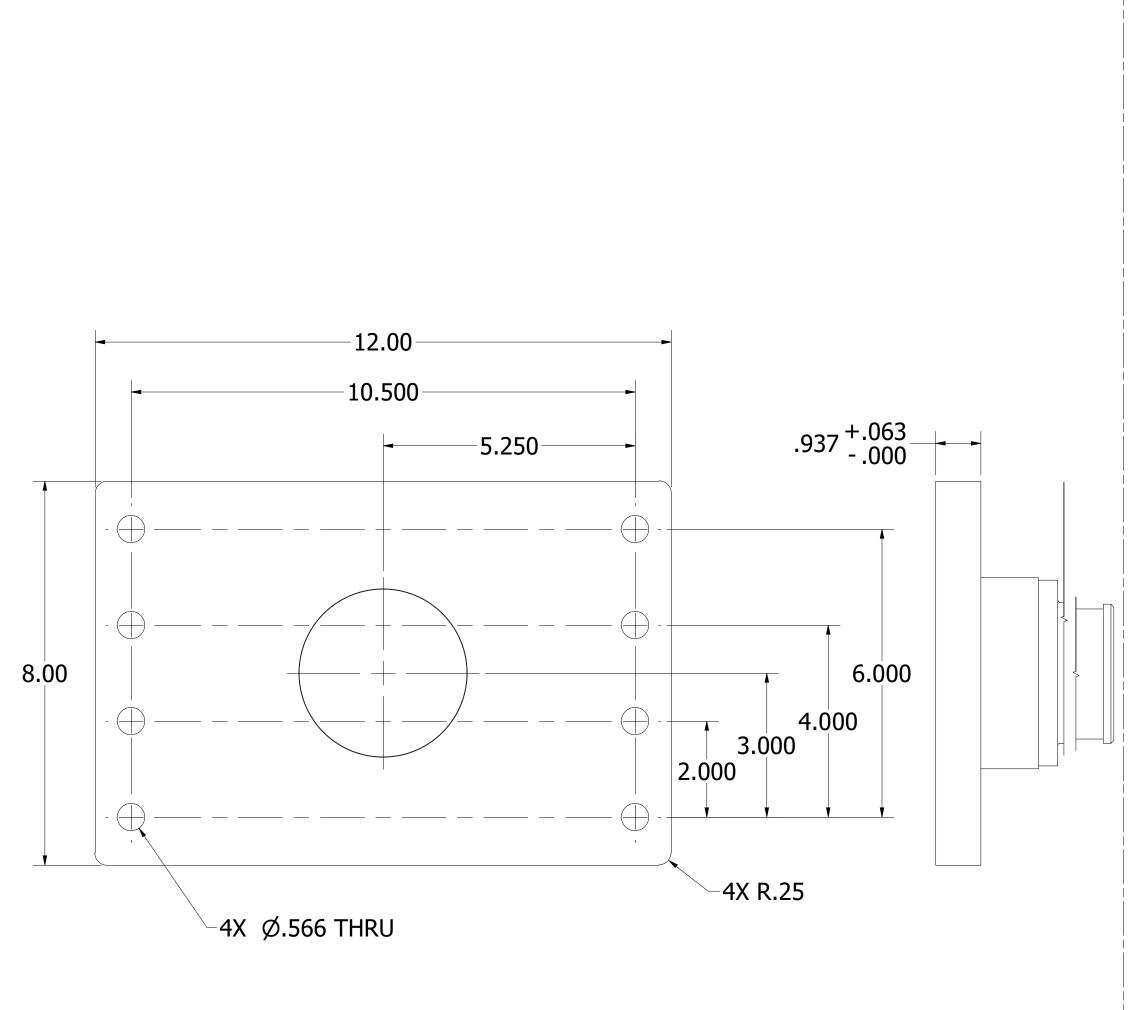
P12/A30 PAYLOAD INTERFACE

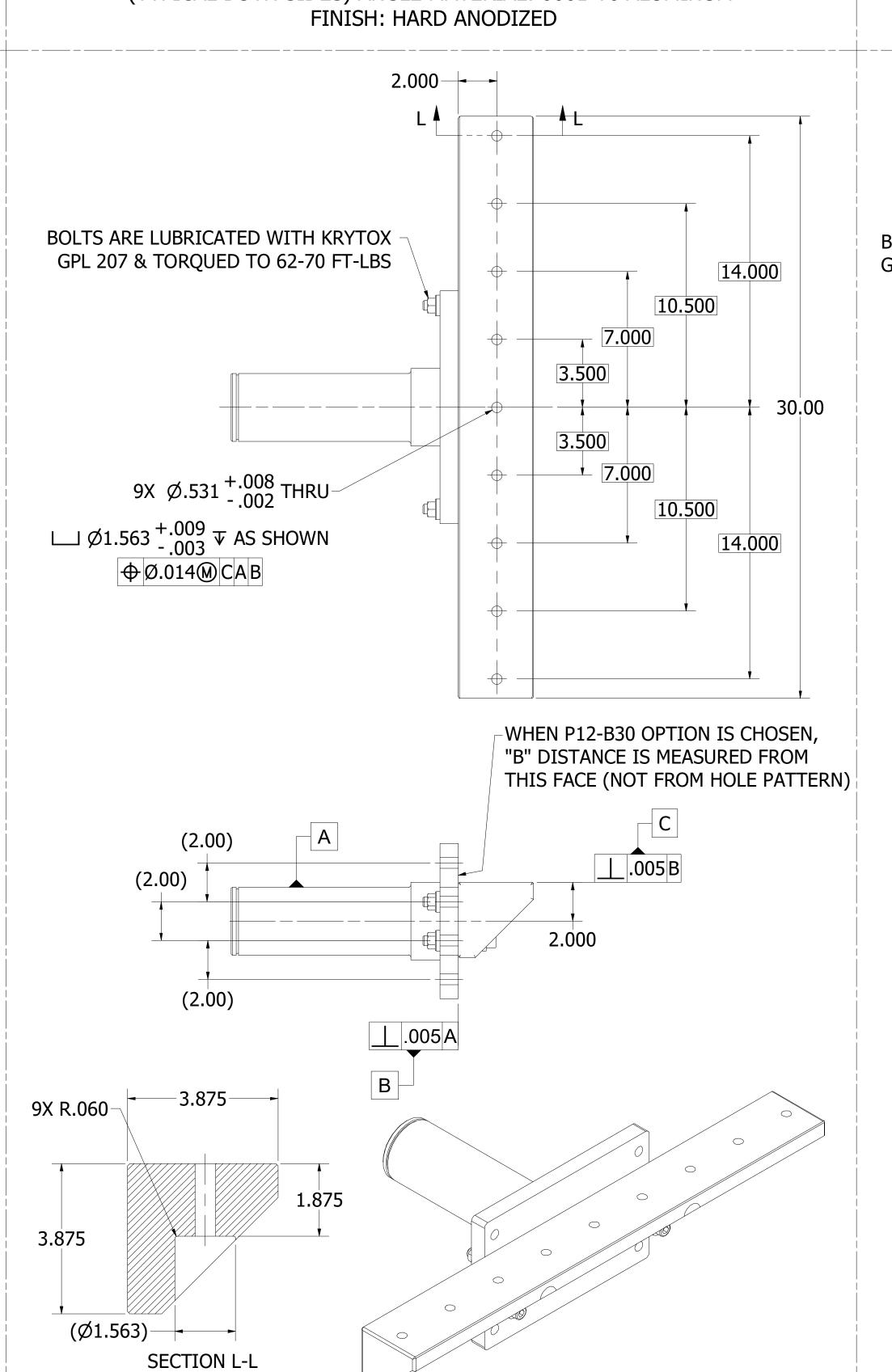
(WITH MACHINED MOUNTING SURFACE & NO PRE-MACHINED HOLE PATTERN)

(TYPICAL BOTH SIDES) ANGLE MATERIAL: 6061-T6 ALUMINUM

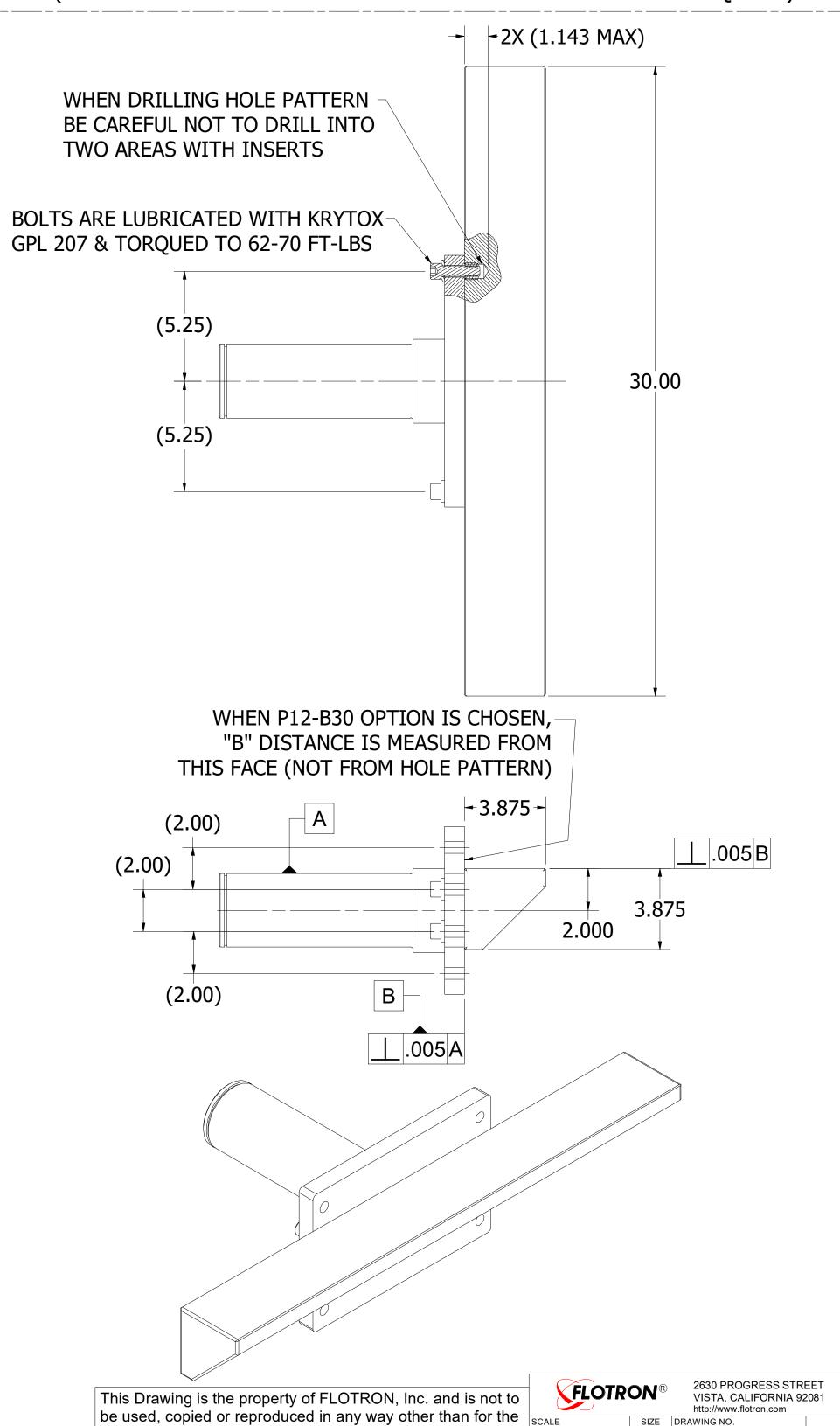
FINISH: SINCE POST MACHINING IS REQUIRED, ANGLE IS CHEM FILMED

(OTHER NON-STANDARD LENGTH ANGLES AVAILABLE UPON REQUEST)





SCALE 1:2



particular purpose for which it is provided, and when said

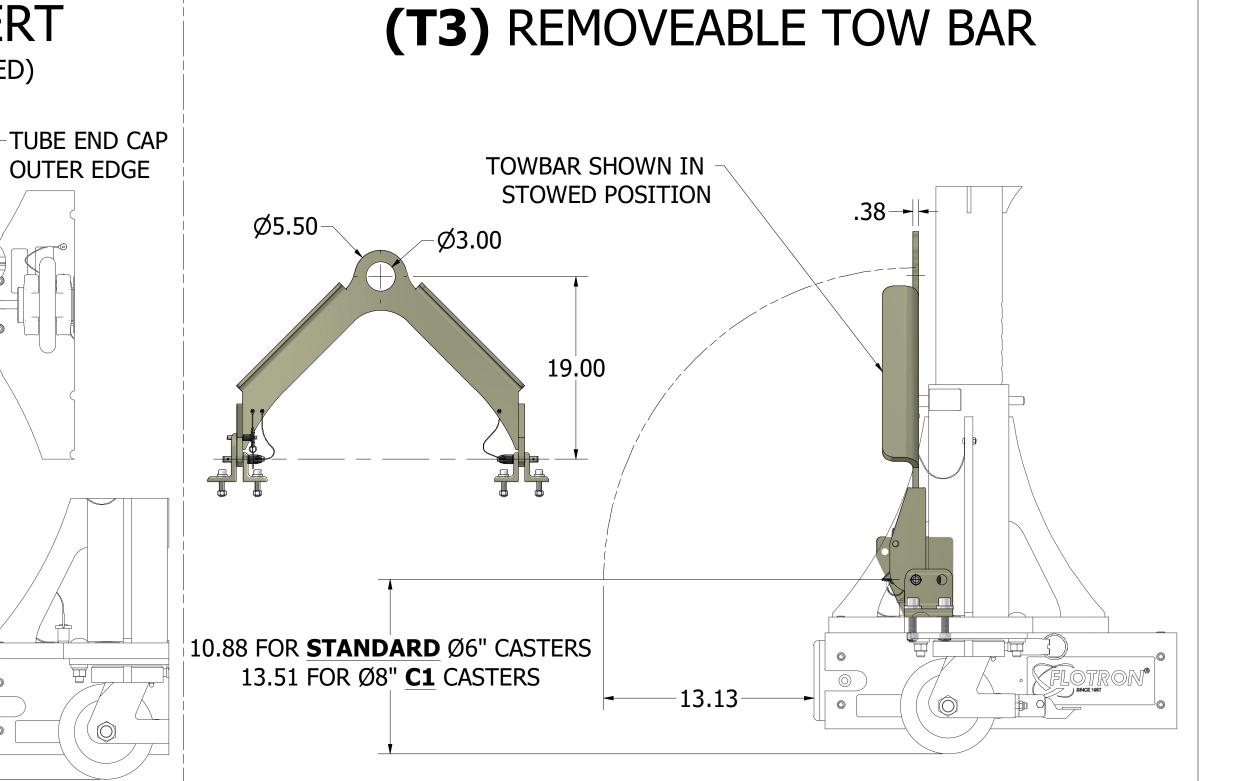
to FLOTRON, Inc.

purpose has been fulfilled, it should be destroyed or returned

1:8 D 8053-000PROP

SHEET 8 OF 9

TOW HARDWARE OPTIONS (T2) REMOVEABLE TOW BALL INSERT (T1) REMOVEABLE TOW RING INSERT OPTION INCREASES OAL OF FIXTURE BY 13" (3" WHEN REMOVED) OPTION INCREASES OAL OF FIXTURE BY 10.5" (3" WHEN REMOVED) (8.86) -STANDARD 2" TUBE END CAP BALL COUPLER - (8.06) -OUTER EDGE (5.17)11.94 MAX SHOWN (**STANDARD** Ø6" CASTERS) 11.19 MAX SHOWN (**STANDARD** Ø6" CASTERS) 3.94 MIN (**STANDARD** Ø6" CASTERS) 3.19 MIN (**STANDARD** Ø6" CASTERS) 14.57 MAX (Ø8" **C1** CASTERS) 13.82 MAX (Ø8" **C1** CASTERS) Ø4.50 6.57 MIN (Ø8" **C1** CASTERS) 5.82 MIN (Ø8" **C1** CASTERS)



2630 PROGRESS STREET

VISTA, CALIFORNIA 92081

SHEET 9 OF 9

1:8 | **D** | 8053-000PROP

STATIC PROOF LOAD TEST (PLT) REQUIREMENTS:

8.00 ADJUSTMENT

PRIMARY AXIS PROOF LOAD REQUIREMENTS

- 1. PROOF LOAD WEIGHT = 2 X 3,200 LBS = **6,400 LBS**
- 2. 100% RATED TORQUE = **12,000 IN-LBS**

STATIC PROOF LOAD TEST PROCEDURE (DO **NOT** ROTATE LOAD):

- 1. VERIFY THAT ALL STRUCTURAL COMPONENTS HAVE BEEN PROPERLY ASSEMBLED AND ALL BOLTS HAVE BEEN TORQUED.
- 2. WEIGH PROOF LOAD TO MAKE SURE IT MEETS REQUIREMENT AND TAKE A PICTURE OF PROOF LOAD ON SCALE WITH LOAD
- VALUE ON SCALE VISIBLE FOR PROOF LOAD REPORT.
- 3. WHILE SUPPORTING PROOF LOAD WEIGHT TORQUE PROOF LOAD MOUNTING BOLTS THEN SLOWLY OFFLOAD PROOF LOAD WEIGHT ONTO FIXTURE.

- (11.11)

-1.00

- 4. STOP AS REQUIRED TO REVIEW AND INSPECT ANY UNEXPECTED NOISES OR MOVEMENTS.
- 5. START TIMER AND TAKE A PICTURE OF TIMER. HOLD FOR (5) FIVE MINUTES. AFTER 5 MINUTES VISUALLY INSPECT FOR CRACKS, DEFORMATION, ETC. TAKE ANOTHER PICTURE OF TIMER.

IF JACK (J2) OPTION IS CHOSEN:

1. LOWER ALL JACKS TO CONTACT THE FLOOR WITHOUT COMPLETELY OFFLOADING WEIGHT FROM CASTERS.

2.00 TYP.-

- 2. AT ONE JACK LOCATION, EXTEND JACK TO RAISE CASTER 1/2" FROM FLOOR.
- 3. REVIEW THE REMAINING JACK POSITIONS AND DOCUMENT CLEARANCE TO FLOOR IF ANY.
- 4. EXTEND THE PARTNER JACK MOUNTED ON THE SAME END FRAME TO RAISE THE CASTER 1/2" FROM FLOOR LEVEL
- 5. FOLLOW THE PROCEDURE ON THE OPPOSITE END FRAME.
- 6. START TIMER AND HOLD FOR (5) FIVE MINUTES.
- AFTER 5 MINUTES VISUALLY INSPECT FOR CRACKS, DEFORMATION, ETC.

SECONDARY AXIS PROOF LOAD REQUIREMENTS (IF SA OPTION IS CHOSEN):

- 1. PROOF LOAD WEIGHT = 2 X 2,500 LBS = **5,000 LBS**
- 2. 100% PRIMARY AXIS RATED TORQUE = 12,000 IN-LBS
- 3. 100% SECONDARY AXIS RATED TORQUE = 10,000 IN-LBS

SECONDARY AXIS PROOF LOAD TEST PROCEDURE (ROTATES LOAD 90°):

- 1. VERIFY THAT ALL STRUCTURAL COMPONENTS HAVE BEEN PROPERLY ASSEMBLED AND ALL BOLTS HAVE BEEN TORQUED.
- 2. WEIGH PROOF LOAD TO MAKE SURE IT MEETS REQUIREMENT AND TAKE A PICTURE OF PROOF LOAD ON SCALE WITH LOAD VALUE ON SCALE VISIBLE FOR PROOF LOAD REPORT.
- 3. WHILE SUPPORTING PROOF LOAD WEIGHT TORQUE PROOF LOAD MOUNTING BOLTS THEN SLOWLY OFFLOAD PROOF LOAD WEIGHT ONTO FIXTURE.
- STOP AS REQUIRED TO REVIEW AND INSPECT ANY UNEXPECTED NOISES OR MOVEMENTS.
 START TIMER AND TAKE A PICTURE OF TIMER. HOLD FOR (5) FIVE MINUTES. AFTER 5 MINUTES VISUALLY INSPECT FOR
- CRACKS, DEFORMATION, ETC. TAKE ANOTHER PICTURE OF TIMER.
- 6. ROTATE PROOF LOAD 90°, START TIMER AND TAKE A PICTURE OF TIMER. HOLD FOR (5) FIVE MINUTES. AFTER 5 MINUTES VISUALLY INSPECT FOR CRACKS, DEFORMATION, ETC. TAKE ANOTHER PICTURE OF TIMER.

DELIVERABLE REPORT REQUIRED. IT MUST INCLUDE:

- A) A SUMMARY OF THE TEST PROCEDURE
- B) A PICTURE OF THE ACTUAL MEASURED WEIGHT OF PROOF LOAD ON SCALE. WEIGHT MUST BE EQUAL TO OR HIGHER THAN REQUIRED WEIGHT.
- C) PICTURE OF TIMER WITH PROOF LOAD THAT SHOWS 5 MINUTES OR LONGER FOR EACH TEST.
- D) VISUAL INSPECTION RESULTS

SFP-862 Dynamic Loading (1.0 G Vertical & 0.5 G Horizontal)

-(11.75)

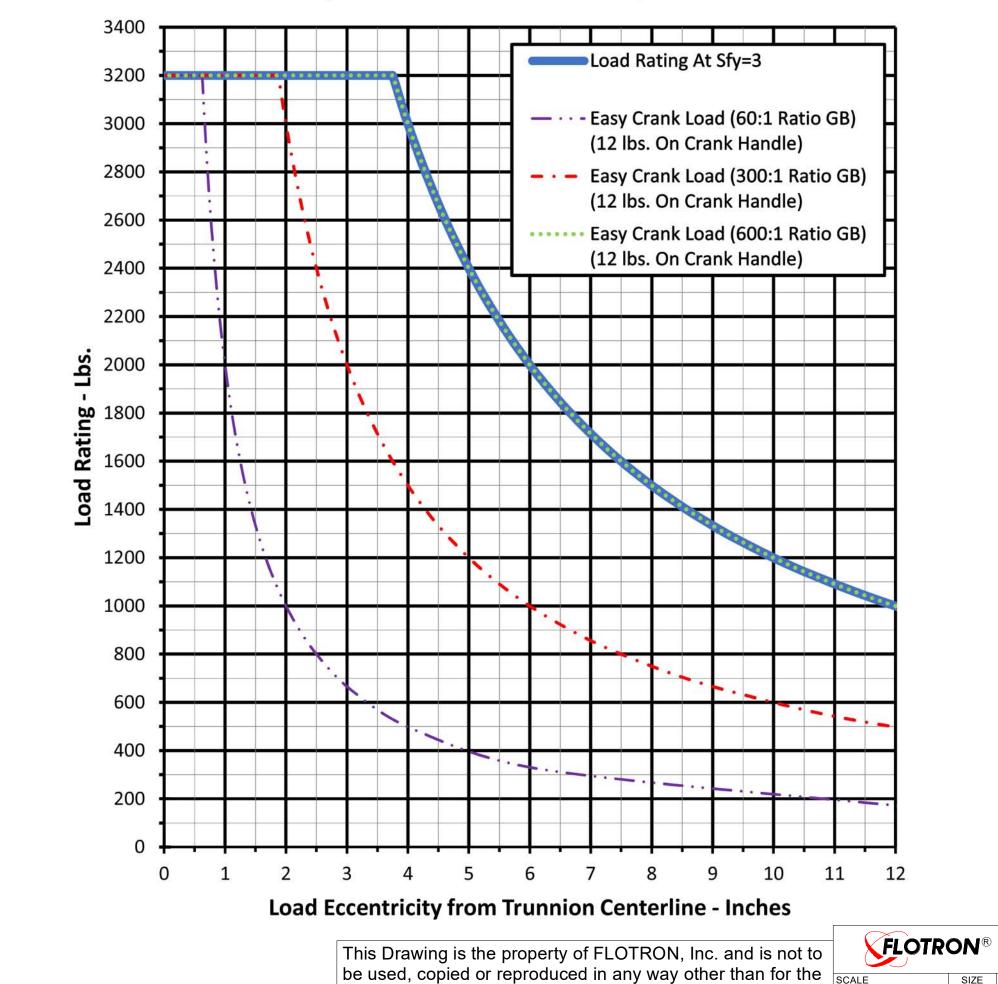
(13.68)

2.00 TYP.-

1.13

8.00

ADJUSTMENT



particular purpose for which it is provided, and when said

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purpose has been fulfilled, it should be destroyed or returned