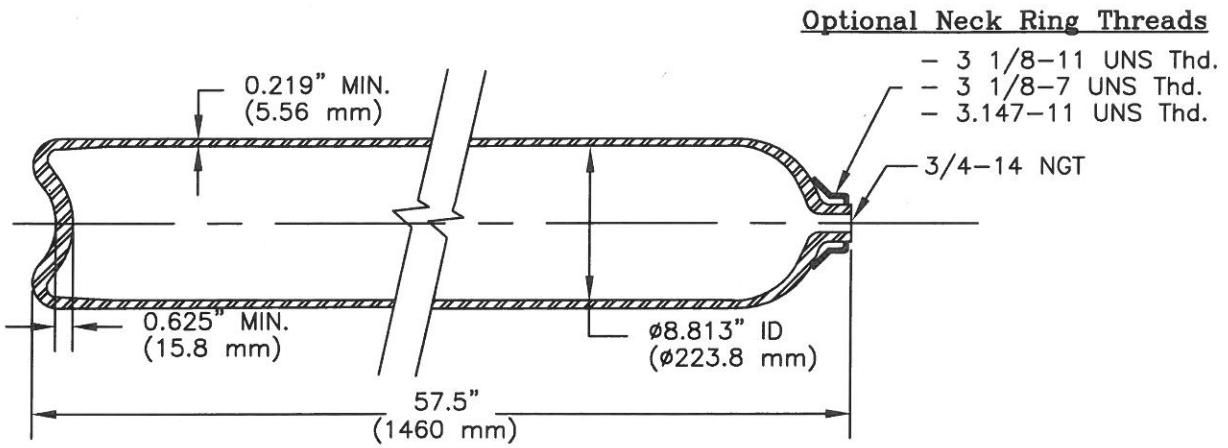
REV.	ECN – DESCRIP.	DATE	DRWN.	CHKD.	APP.
01	1187 TC	1/10/94	SJ	RS	BA
02	ECN # 1516	6/17/97	SJ	RS	BA
03	1833	9/22/99			
04	2797	10/21/08	JJM	JJM	



DRAWING FOR REFERENCE ONLY

SPECIFICATION: DOT–SP 9370–3330/TC–SU4210–229
MODEL: 8BC440

1. **Principal Elements:**
   - Min. water capacity: 114.7 lbs (52 kg)
   - Min. water volume: 3181 in^3 (52 liter)
   - Approx. cylinder wgt: 144 lbs (65.3 kg)
   - DOT Service pressure: 3330 psi
   - TC Service pressure: 229 bar
   - Test pressure: 5000psi (344.8 bar)

2. **Material:**
   Chrome–Moly steel, (A.I.S.I. 4137)

3. **Manufacture:**
   Hot billet pierce followed by hot drawing.

4. **Heat Treatment:** Q & T

5. **Norris Standard Mechanical Properties:**
   - Tensile: 135,000–155,000psi (930–1069MPa)
   - Elong.: ≥ 16% (on 2" gauge)
   - Hardness ≤ R_c 36
   - Charpy: 25.0 ft–lbs (avg. 3 specimen)
     21.0 ft–lbs (individual minimum)
     (AT –60°F, 1/2 size, longitudinal specimen)

D.O.T. Wall Stress Calculations: $S = P(1.3D^2 + 0.4d^2)/(D^2 - d^2)$

S = Maximum wall stress, psi
P = Test pressure, psi
D = Outside diameter, inch
d = Inside diameter, inch

$$s = \frac{5000\,[1.3(9.251)^2 + 0.4(8.813)^2]}{(9.251)^2 - (8.813)^2}$$

s = 89,941 psi (620.1 MPa)

Required Minimum tensile: $= \frac{89{,}941}{0.67}$ = 134,241 psi (925.6 MPa)

Notes:
- Ultrasonic flaw check required for each cylinder.
- After final heat treatment, each cylinder must be hardness tested on the cylinderical section.
- REE to be calculated per CGA C–5 and stamped on each cylinder.

NORRIS CYLINDER COMPANY
P.O. BOX 7486 LONGVIEW, TEXAS 75607

ULTRALIGHT, REFILLABLE SEAMLESS STEEL GAS CYLINDER, MODEL 8BC440

SCALE	NOT TO SCALE		DRAWING NO.	REV.
DWN. BY	M BENHAM	12/10/91	901A–B–9115	04
CHK'D BY	R. SHAFKEY	1/28/92		
APP'D BY	B. ARNOLD	1/28/92	SHEET NO. 1 OF 1 SHEETS	