CYLINDER 140034.11

1	AJ 043403	19	AJ 043389
2	AJ 043397	20	AJ 043383
3	AJ 043379	21	AJ
4	AJ 043376	22	AJ
5	AJ 043414	23	AJ
6	AJ 043435	24	AJ
7	AJ 043381	25	AJ
8	AJ 043396	26	AJ
9	AJ 043380	27	AJ
10	AJ 043409	28	AJ
11	AJ 043388	29	AJ
12	AJ 043385	30	AJ
13	AJ 043411	31	AJ
14	AJ 043416	32	AJ
15	AJ 043408	33	AJ
16	AJ 043387	34	AJ
17	AJ 043391	35	AJ
18	AJ 043433	36	AJ

MTE Report No: 58498
Part#: 140034
WO#:

Certificate of compliance and test report – welded or brazed cylinders
Manufactured under Dept. of Transportation regulations

Manufacturer: MANCHESTER TANK & EQUIP.

Location: 3630 Manchester Drive, ELKHART, IN 46514 USA

CYLINDER DESCRIPTION AND DESIGN CRITERIA:

DOT spec. 4BW

Service Pressure: 400 psi

Nominal size: 10.000in. O.D.x 47.375in. Long

Test Pressure: 800 psi

Nominal volumetric capacity: 123.0 lb

Minimum wall: 0.109 in.

Tare weight range: 51.00 - 53.00 lb

Calculated stress @ T.P: 34685 psi

Joint Efficiency: Spot X-Ray for 90% Joint Efficiency.

MANUFACTURING PROCESS:

Construction: (Welded, brazed, type seams, etc) These Cylinders were made by process of electric arc welding semi-elliptical heads to a rolled shell. The Longitudinal butt seam was butt welded, per 178.61-(d)(3)(i). The circumferential seams were Joggle butt welded, per 178.61(d)(2).

MATERIAL AND HEAT TREATMENT:

Material was type 3 authorized in Table 1 of Appendix A of Part 178.

The material was identified by Heat Numbers: 225153,USL17V65908

REPORT DETAILS:

Quantity: 124

Test date: 05/2018

Serial# Range: AJ044337 – AJ044460

Heat no. or code: 70S,70Y

Identifying symbol: M4499

Lot numbers: 1 - 1

MARKINGS:

Inspector's mark: JS

MANUFACTURED FOR: Stock

CONSIGNED TO:

I hereby certify that I have determined that cylinders described on this report comply with the requirements of Dept. of Transportation specification Title 49 CFR, Part 178.61

Remarks:

Signed:
JIM SOMMER

Location: ELKHART, IN

Date: 05-04-18

MTE Report No: 58498

Record of chemical analysis of material for cylinders

Serial no range: AJ044337 to AJ044460 inclusive

Cylinder size: 10.000in. O.D. x 47.375in. long

Cylinder Manufacturer: MANCHESTER TANK & EQUIP.

Heat and Code number.	Type of Analysis (ladel/check	Chemical Analysis									
		C Ni	Mn Cu	P Cr	S Mo	Si Ti	Al Mg	Cb Zn	V Fe	Other 1 Name – Sym Other 2 Name - Sym	
70S - 225153	Ladle	0.040 0.030	0.830 0.080	0.010 0.050	0.002 0.010	0.020 0.001	0.020 0.000	0.034 0.000	0.001 0.000	- -	
MANUF BY: NORTHSTAR TESTED BY: NORTHSTAR											
70Y - USL17V65903	Ladle	0.080 0.003	0.820 0.015	0.008 0.034	0.004 0.002	0.100 0.002	0.036 0.000	0.045 0.000	0.001 0.000	- -	
MANUF BY: NLMK TESTED BY: NLMK											

Material manufacturer: Manufacturers listed in above data.

The above analyses have been verified to comply with material authorized by the specification. Chemical Analyses were made by Companies listed in above data.

Location: ELKHART, IN

Date: 05-04-18

MTE Report No: 58498

Record of physical test of material for cylinders

Serial no range: AJ044337 to AJ044460 inclusive

Cylinder size: 10.000 in. O.D. x 47.375 in. long

Cylinder Manufacturer: MANCHESTER TANK & EQUIP.

Type of heat treatment: Cylinders were heat treated in excess of 1100F, in accordance with the 4BW Cylinder Spec.

First Serial# Last Serial# Min Wall Thick Wall Stress	Lot number	Heat Code	Yield strength Psi	Tensile strength Psi	Yield/ tensile ratio*	Elongation % in Inches** Length	%	Red in area %	Weld test * tensile bend	Flat test *	Burst test *	Cycle test *
AJ044337	I-HT	70S	77991	84368	%	3.168	16.6	59.5	SAT		PASS	
AJ044460	I-HB	70S			%							
0.116 in	I-S	70Y	73869	76304		2.784	23.8	48.9				
32594 psi	I-W			75173					SAT			

HT – Head Top HB – Head Bottom S – Side Wall W – Weld PM – Parent Material SAT - Satisfactory

* Where applicable

** Insert gage length of specimen

Location: ELKHART, IN

Date: 05-04-18

Record of hydrostatic tests of cylinders (sample basis)

Serial no range: AJ044337 to AJ044460 inclusive

Cylinder size: 10.000 in. O.D. x 47.375 in. long

Cylinder Manufacturer: MANCHESTER TANK & EQUIP.

Test method: Water Jacket method, per CGA C-1.

Test pressure: 800 psi

	Lot # Serial # Range	Lot Size	Permanent Expansion Cm^3	Total Expansion Cm^3	% Ratio of Permanent to Total Expansion	Volumetric Capacity (lbs.)
1	AJ044337 - AJ044460	124	2.00	135.00	1.5	123.0

The above results represent sample cylinders selected from each lot. All other cylinders in the lot were subjected To a proof pressure of 800 psi and showed no defects.

Location: ELKHART, IN

Date: 05-04-18