



- 1/16" Accuracy
- 90 Foot gauging flange
- Simple installation
- Ground or roof reading
- Completely automatic
- Easily serviced
- Economical

## The Shand & Jurs Model 92021 Automatic Tank Level Gauge

The Shand & Jurs Model 92021 Automatic Tank Level Gauge is a float actuated tape driven gauge and by means of a digital counter indicates float travel accurately to 1/16 inch. Model 92021 meets all the specifications and recommendations of the American Petroleum Institute in accordance with API Bulletin 2509B.

This Automatic Tank Gauge comes equipped with the Acutrak 90TM modular cartridge kit. The kit consists of a spring motor drum, a power hub and a stainless steel constant power spring. The cartridge and tape drum are constructed of RYTON®, a specially engineered polymer that offers outstanding chemical resistance, mechanical strength and abrasion resistance. Also included in the tank gauge is an accurately perforated stainless steel tape. Bearing loads are well distributed through teflon bushings rotating on polished stainless steel shafts.

Local readout is by means of a digital counter featuring large black numerals on a white background. Remote

reading is added by simply removing the counter housing cover, installing a 2" coupling and bolting a transmitter in place of the counter housing cover. Gauge calibration is quick and easy . . . loosen screws and swing open access plate; then simply rotate large inch wheel until counter wheels are set. This is the fastest and most positive calibration available on any float actuated counter type gauge.

Choice of materials, rugged construction and counter housing sealed from gauge head permits application of the gauging system to a wide variety of environmental conditions. An operational checker for manually jogging the tape to insure a "free movement" system is standard on gauge head as well as provisions for optional high and low level limit switches. A hand crank for manually raising and lowering the float is also optional.

Complete accessory kits are available for all standard and most special tank configurations and cover a broad selection of materials.

**SPECIFICATIONS:**

Type of service: ..... Normal (Aluminum)  
Ammonia (Aluminum)  
Severe (Iron)

Maximum pressure: ..... 15 PSIG, Normal or  
Ammonia Service  
50 PSIG, Severe Service

Temperature Range: .... -30° to 180° F\*

Gauging Range: ..... to 90 feet (Standard)\*\*  
to 27.4 meters  
(Standard)\*\*

**MATERIALS OF CONSTRUCTION:**

Body and Cover: ..... Cast Aluminum  
(Normal & Ammonia  
Service)  
Nodular Iron (Severe  
Service)

Counter Housing: .... Cast Aluminum

Constant  
Power Spring: ..... Stainless Steel

Perforated Tape: ..... 316 Stainless Steel

Sprocket Wheel: ..... Cast Aluminum

Tape Reel: ..... Ryton®

Bearing & Seals: ..... Ball Bearings and Teflon

Hardware: ..... Steel

Storage Hub: ..... Ryton®

\* For service below -30°F consult factory.  
\*\* For higher ranges consult factory.

**ADVANTAGES & BENEFITS:**

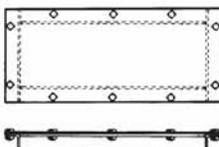
- **ACCURACY**- Large digital readout driven by accurately perforated tape meets API standards of accuracy.
- **RELIABILITY**- Long contact arc of tape on sprocket and non-jamming construction of rotating parts assure reliability. Constant tension on float results in accurate reading; also, ventilated counter housing is non-fogging.
- **VERSATILE**- Low copper aluminum body, carefully selected materials for internals, optional features and accessories make this system adaptable to most products and storage vessels.
- **ECONOMICAL**- Limited number of mounting brackets minimize installation cost. Complete gauging system "kits" for each installation further reduce cost.
- **EASIER SERVICE**- Negator spring and housing easily replaced.
- **SAFE**- Totally enclosed negator motor protects maintenance personnel during service.

**SPECIFICATIONS**

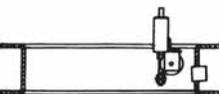
Type of Kit Class: .....	Class (A) Normal Service Class (B) Ammonia Service Class (C) Severe Service
Maximum Pressure: .....	15 PSIG* (With Standard 316 Stainless Steel Float) 50 PSIG* (With Reinforced 304 Stainless Steel Float)
Support Bracket: .....	Steel
Anchor Bar: .....	Steel
Guide Wire Spring Assembly: .....	Steel
Guide Wire: .....	Stainless Steel
Pulley Housing: .....	Cast Aluminum - Class A & B; Nodular Iron- Class C
Pulley: .....	Delrin - Class A; Cast Aluminum - Class B Class C
Floats:	<b>Model JB3010 - 21</b> Std. Stainless Steel Pan Float (11-3/4" Dia.) 15 PSIG with guides (13-1/4" Centers) <b>Model JB3025-18</b> Stainless Steel Pan Type Float (17-1/4" Dia.- for Floating Roof tanks below 3 PSIG without guides <b>Model JB3031-1</b> Reinforced Stainless Steel Pan Type Float (11-3/4" Dia.) 50 PSIG with guides (13-1/4" Centers)

\*50 PSIG service available for Kit No. 12C & 14C

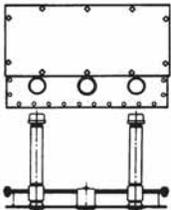
**AUXILIARY GAUGING ACCESSORIES**



**Inspection Frame & Cover  
Model JB3530-1**  
Recommended for use on in-service cone roof tank, Type I, installation through existing manhole.



**Model JB3516-2**  
Manhole adapter & Cover for use on in-service cone roof tank, Type II, installation through existing manhole.



**Model JC3517-2**  
Recommended for use on tank entry in-service cone roof tank, Type III, installation through tank top.



**Model JB3518-3**  
Tank entry assembly for in-service cone roof tank, Type IV, installation through tank top.



**Ventilator  
Model JB3555-2**  
Recommended to prevent corrosive vapors from entering the gauge head.



**Flexible Tank Entry  
Model 9399-19000**  
Provides a non-rigid tape entry if roof movement is present.

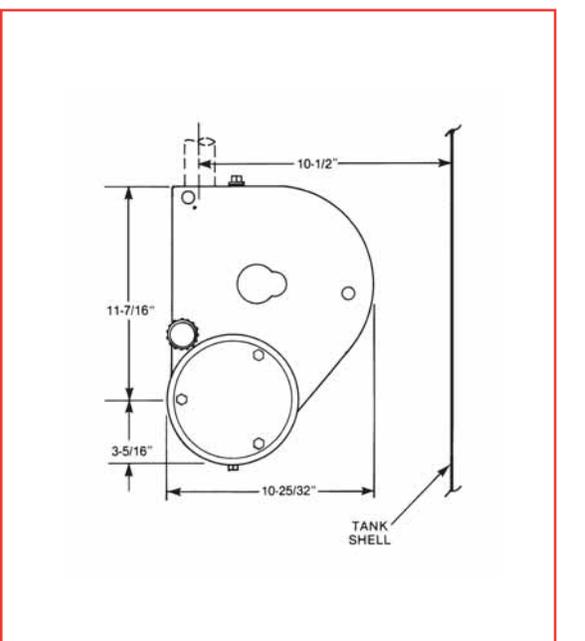
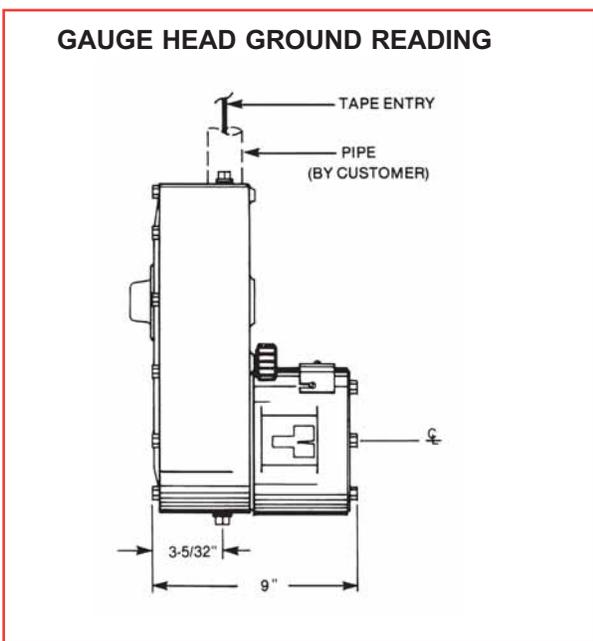


**Tape/Cable Block Valve  
Model 93421**  
Isolates the gauge head from tank; recommended for inspection and servicing fo gauging system.

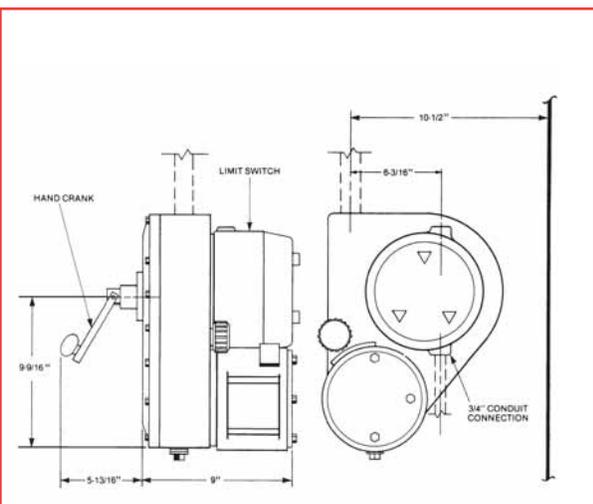


**Limit Switch  
Model 99050**  
Contains up to 6 cam operated switches in an explosion-proof housing for Class I, Group D, Division 1. Switches can be used to indicate high and/or low level alarms, or to actuate pump, motor operated valves or other actuating equipment.

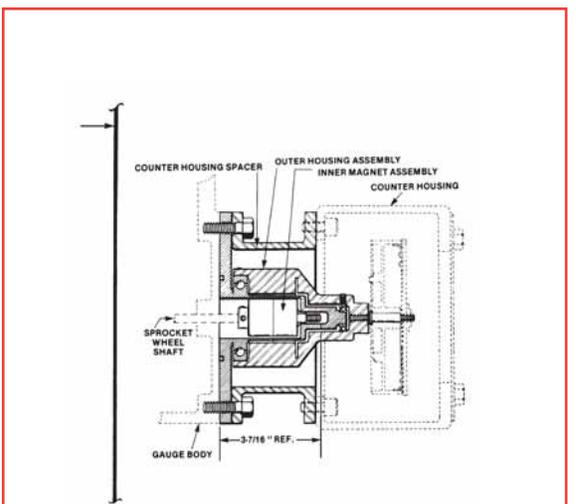
**OUTLINE DIMENSIONS**



**SHIPPING WEIGHT ...46 LBS. HORIZONTAL CENTER LINE OF READING WINDOW  
 INSTALL AT ANY HEIGHT ABOVE GRADE TO SUITE INSTALLATION**



**MODEL 92021 GAUGE HEAD WITH  
 MODEL 99050 LIMIT SWITCH AND FLOAT  
 LIFTING HAND CRANK OPTION**



**MAGNETIC DRIVE MOTOR OPTION**



## MATERIAL OF CONSTRUCTION

### GAUGEHEAD

SERVICE	BODY	COVER	COUNTER HOUSING	TAPE REEL	SPROKET	HARDWARE
NORMAL	CA	CA	CA	CA	CA	RP
AMMONIA	CA	CA	CA	CA	CA	RP
SEVERE	NI	NI	CA	CA	CA	RP

Sprocket pins, negator, tapes, shafts, and Ball Bearings are SS. Sleeve Bearings are Teflon.

CA = Cast Aluminum  
 SS = Stainless Steel  
 RP = Rust Proof Steel

Pipe Support Bracket = Steel angle Brackets are furnished to fasten pipe to tank every 10'

**TABLE I - GAUGE HEAD OPTIONS AND SERVICE  
 (WITH OPERATION CHECKER)**

OPTION (AB)	DESCRIPTION	SERVICE
31	GAUGE HEAD ONLY	NORMAL*
41		AMMONIA*#
51		SEVERE**
32	GAUGE HEAD WITH PROVISION FOR LIMIT SWITCH ASSEM. MTD. TO SIDE OF GAUGE HEAD***	NORMAL*
42		AMMONIA*#
52		SEVERE**
33	GAUGE HEAD WITH FLOAT LIFTING HAND CRANK	NORMAL*
43		AMMONIA*#
53		SEVERE**
34	GAUGE HEAD WITH FLOAT LIFTING HAND CRANK & PROV. FOR LIMIT SWITCH ASSEM. MTD. TO SIDE OF GAUGE HEAD***	NORMAL*
44		AMMONIA*#
54		SEVERE**

- \* Maximum Pressure: 15 psig
- \*\* Maximum Pressure: 50 psig. Specify kits 12C or 14C when used for 3 to 50 psig service.  
 Select tape block valves from Price List 94321
- \*\*\* When mounting limit switch assembly to counter housing there will be a charge applied to the gauge price. See Price List 99050 for selection of limit switch assembly and appropriate adapter price.
- # MUST USE OPTION 01 - MAGNETIC DRIVE FROM TABLE IV

**TABLE II - CALIBRATION READING**

OPTION (C)	CALIBRATION	READING
0	FEET AND INCHES	INNAGE
1		OUTAGE
2	DECIMAL FEET	INNAGE
3		OUTAGE
4	METRIC	INNAGE
5		OUTAGE

**TABLE II - MAXIMUM TANK HEIGHT**

OPTION (D)	MAXIMUM TANK HEIGHT
5	60 FEET OR 18.2 METERS
8	90 FEET OR 30 METERS
9	120 FEET*

\* Does not have Acutrak Cartridge

**TABLE III - TYPE OF INSTALLATION**

OPTION (EF)	MAXIMUM TANK HEIGHT
00	RESERVED
01	GROUND READING (FIXED ROOF)
02	GROUND READING (FLOATING ROOF)
03	ROOF READING
04	TURBULENT TANKS*

\* Use Kits 3 or 14 only.

**TABLE IV - MAGNETIC DRIVE**

OPTION (GH)	MAXIMUM TANK HEIGHT
00	WITHOUT MAGNETIC DRIVE
01*	WITH MAGNETIC DRIVE
10	CE NO MAGNETIC DRIVE
21*	CE AND MAGNETIC DRIVE
30	ATEX CERTIFICATION NO MAGNETIC DRIVE
41*	ATEX CERTIFICATION AND MAGNETIC DRIVE

\* When option \*1 is called for, include instructions 92-033 in addition to Kit instructions

### ACCESSORY KITS:

The following accessories are grouped together in various typical combinations for use with the gage head to provide a complete gaging system. These accessory combinations are assigned kit numbers for convenient references. When the tank requirement is known, select the corresponding kit and material. From the kit shown, select the parts required and list separately on the sales order. Other accessories are available and are listed on this Key Data.

### PRESSURE RATINGS:

The standard accessory kits listed are for low pressure tanks (less than 3 psi) with the exception of kits 12C and 14C which are rated up to 50 psi.

Kit Legend (For use with kit diagrams):

- |                          |                        |                             |
|--------------------------|------------------------|-----------------------------|
| 1- Tank Gauge            | 8- Guide Wire Spring   | 16- "A" Frame               |
| 2- Tank Bracket          | 9- 45 Pulley           | 17- Pan Float               |
| 3- 90 Pulley             | 10- Header Assembly    | 18- Cable                   |
| 4- Tape                  | 11- Guide Wire Bracket | 19- Inspection Frame        |
| 5- Stainless Steel Float | 12- Cable Block Valve  | 20- Manhole Adaptor Ass'y   |
| 6- Guide Wire            | 13- Cut-Off Pulley     | 21- Tank Entry              |
| 7- Anchor Bar            | 14- Guide Wire Bracket | 22- Guide Wire Hanger Ass'y |
|                          | 23- Ventilator         | 24- Liquid Seal             |

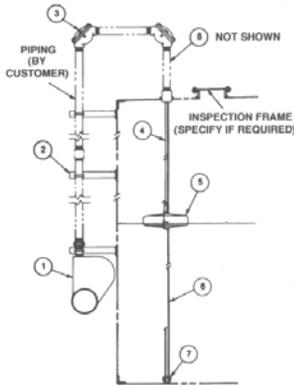
## MATERIAL OF CONSTRUCTION

GUIDE WIRE AND SPRING ASSEMBLIES							
TYPE	HOUSING	CAP	TUBE	WASHER	SPRING	RETAINER	WIRE
CLASS A	STEEL	STEEL	STEEL	STEEL	STEEL	STEEL	SS
CLASS B							
CLASS C							

PULLEY ASSEMBLY					
TYPE	HOUSING	COVER	PULLEY	BEARING	SHAFT
CLASS A	CA	CA	DELTRAN	TEFLON	SS
CLASS B	CA	CA	AL	TEFLON	SS
CLASS C	NI	NI	AL	TEFLON	SS

NOTE:  
KIT CLASS:

MAX. PRESSURE: 3psig, EXCEPT KITS 12C & 14C  
A = NORMAL  
B = AMMONIA  
C = SEVERE (RATED 50 psig MAX)

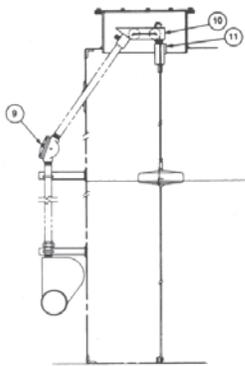


### KIT NUMBER 1 - CONE ROOF TANK

DESCRIPTION	NO. REQ'D.	KIT 1A CLASS "A"	KIT 1B CLASS "B"	KIT 1C CLASS "C"
Pulley, 90 , 1-1/2" NPT	2	9399-13440	9399-13450	9399-13460
Guide wire spring assy.	2	JB3486-11	JB3486-11	JB3486-11
Float	1	JB3010-21	JB3010-21	JB3010-21
Anchor Bar	1	JA3540-3	JA3540-3	JA3540-3
Tape Clamp	1	090142	090142	090142
Tape Thimble	1	514-504	514-504	514-504
Tank Bracket	*	JB3435-1	JB3435-1	JB3435-1

\* One Bracket for every 10 feet

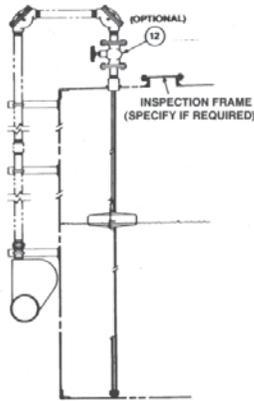
### INSTALLATION THROUGH TANK ROOF



### KIT NUMBER 2 - CONE ROOF TANK, SHELL ENTRY

DESCRIPTION	NO. REQ'D.	KIT 2A CLASS "A"	KIT 2C CLASS "C"
Pulley, 45 1-1/2" NPT	1	9399-13470	9399-13490
Guide Wire Spring Assy.	2	JB3485-17	JB3485-17
Float	1	JB3010-21	JB3010-21
Anchor Bar	1	JA3540-3	JA3540-3
Header Assembly	1	JB3505-2	JB3505-2
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Guide Wire Bracket Assy.	1	JB3490-1	JB3490-1
Tank Bracket	*	JB3435-1	JB3435-1

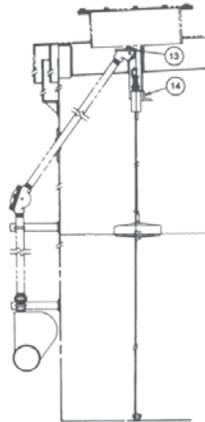
\* One Bracket for every 10 feet



### KIT NUMBER 3 - TURBULENT TANK FOR CONE ROOF TANK

DESCRIPTION	NO. REQ'D.	KIT 3B CLASS "B"	KIT 3C CLASS "C"
Float	1	JB3010-21	JB3010-21
Pulley, 90 , 1-1/2" NPT	2	9399-13450	9399-13460
Tape Clamp	1	090142	090142
Guide Wire Spring Assy.	2	JB3486-11	JB3486-11
Anchor Bar	1	JA3540-1	JA3540-1
Tank Bracket	**	JB3435-1	JB3435-1
* Cable Block Valve	1	93421-21*	93421-21*

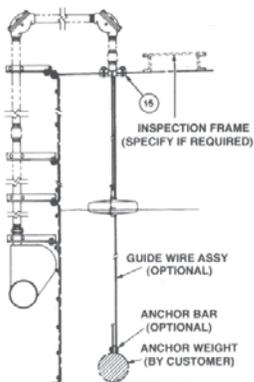
- \* Cable Block Valve NOT INCLUDED in Kit; Specify separately, and price per list 93421
- \*\* One Bracket for every 10 feet



### KIT NUMBER 4 - MOVEABLE ROOF TANK

DESCRIPTION	NO. REQ'D.	KIT 4A CLASS "A"	KIT 4C CLASS "C"
Pulley, 45 , 1-1/2" NPT	1	9399-13470	9399-13490
Guide Wire Spring Assy.	2	JB3485-17	JB3485-17
Float	1	JB3010-21	JB3010-21
Cutoff Pulley	1	9399-13500	9399-13500
Anchor Bar	1	JA3540-3	JA3540-3
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Guide Wire Bracket Assy.	1	JB3490-1	JB3490-1
Tank Bracket	*	JB3435-1	JB3435-1

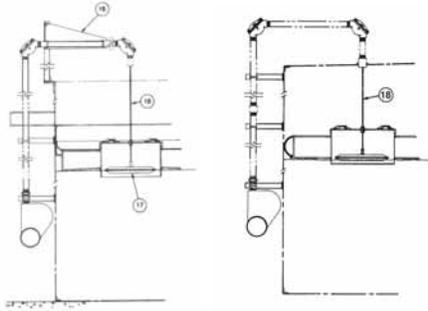
- \* One Bracket for first 20 feet plus one for each additional 10 feet



### KIT NUMBER 5 - BOLTED TANK

DESCRIPTION	NO. REQ'D.	KIT 5A CLASS "A"	KIT 5C CLASS "C"
Pulley, 90 , 1" NPT	2	JB3561-1	JB3560-3
Float	1	JB3010-21	JB3010-21
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Pipe Bushing 1-1/2" x 1" NPT	1	229-194	229-194
Tank Bracket Assembly	*	JA3446-1	JA3446-1
Tape Entry Assembly	1	090871	090871

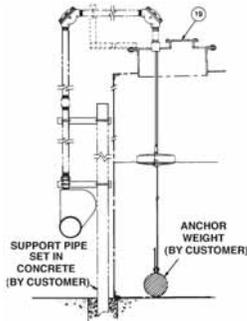
- \* Standard Height for Bolted Tanks are: 8 feet, 16 feet, and 24 feet
- Number of brackets required are:
  - 2 for 8 foot tank
  - 3 for 16 foot tank
  - 4 for 24 foot tank



### KIT NUMBER 6 - FLOATING ROOF TANK KIT NUMBER 7 - COVERED FLOATING ROOF TANK

DESCRIPTION	NO. REQ'D.	KIT 6A CLASS "A"	KIT 7A CLASS "A"
Pulley 90 , 1-1/2" NPT	2	9399-13440	9399-13440
A Frame	1	JC3436-1	-----
Pan Type Float	1	JB3025-18	JB3025-18
Tank Bracket	*	JB3435-1	JB3435-1

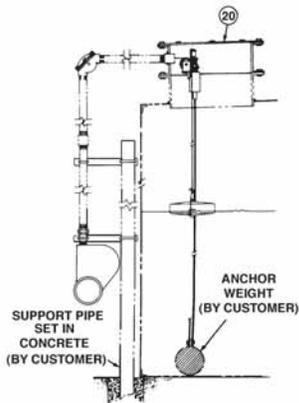
\* One Bracket for every 10 feet



### KIT NUMBER 8 - TANK IN SERVICE (TYPE I)

DESCRIPTION	NO. REQ'D.	KIT 8A CLASS "A"	KIT 8C CLASS "C"
Pulley, 90 , 1-1/2" NPT	2	9399-13440	9399-13460
Guide Wire Spring Assy.	2	JB3486-11	JB3486-11
Float	1	JB3010-21	JB3010-21
Anchor Bar	1	JA3540-3	JA3540-3
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Tank Bracket	*	JB3435-1	JB3435-1
Inspection Frame	1	JB3530-1	JB3530-1

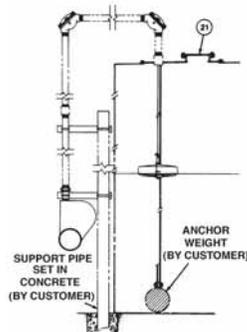
\* One Bracket for every 10 feet



### KIT NUMBER 9 - TANK IN SERVICE (TYPE II)

DESCRIPTION	NO. REQ'D.	KIT 9A CLASS "A"	KIT 9C CLASS "C"
Pulley, 90 , 1-1/2" NPT	1	9399-13440	9399-13460
Float	1	JB3010-21	JB3010-21
Anchor Bar	1	JA3540-3	JA3540-3
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Manhole Adapter Assy.	1	JB3516-2	JB3516-2
Tank Bracket	*	JB3435-1	JB3435-1

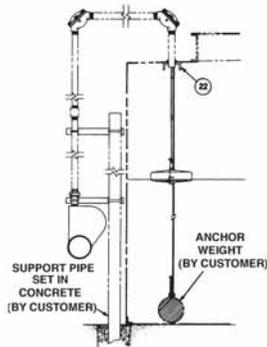
\* One Bracket for first 10 feet



### KIT NUMBER 10 - TANK IN SERVICE (TYPE III)

DESCRIPTION	NO. REQ'D.	KIT 10A CLASS "A"	KIT 10C CLASS "C"
Pulley, 90 , 1-1/2" NPT	2	9399-13440	9399-13460
Tank Entry Assembly.	1	JC3517-2	JC3517-2
Float	1	JB3010-21	JB3010-21
Anchor Bar	1	JA3540-3	JA3540-3
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Tank Bracket	*	JB3435-1	JB3435-1

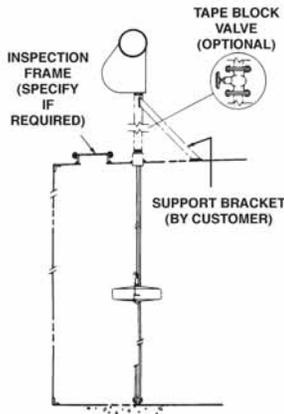
\* One Bracket for every 10 feet



### KIT NUMBER 11 - TANK IN SERVICE (TYPE IV)

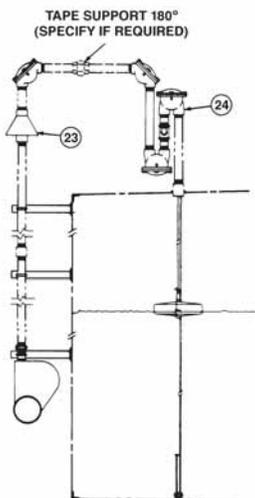
DESCRIPTION	NO. REQ'D.	KIT 11A CLASS "A"	KIT 11C CLASS "C"
Pulley, 90 , 1-1/2" NPT	1	9399-13440	9399-13460
Float	1	JB3010-21	JB3010-21
Anchor Bar	1	JA3540-3	JA3540-3
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Guide Cable Hanger Assy.	2	JB3518-3	JB3518-3
Tank Bracket	*	JB3435-1	JB3435-1

\* One Bracket for first 10 feet



### KIT NUMBER 12 - ROOF READING

DESCRIPTION	NO. REQ'D.	KIT 12A CLASS "A"	KIT 12C CLASS "C"
Float	1	JB3010-21	JB3031-1
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Guide Wire Spring Assy.	2	JB3486-11	JB3486-11
Anchor Bar	1	JA3540-3	JA3540-3



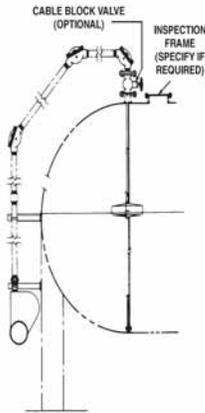
### KIT NUMBER 13 - CONE ROOF TANK WITH LIQUID SEAL

DESCRIPTION	NO. REQ'D.	KIT 13A CLASS "A"
Pulley, 90 , 1-1/2" NPT	1	9399-13440
Guide Wire Spring Assy.	2	JB3486-11
Float	1	JB3010-21
Anchor Bar	1	JA3540-3
Tape Clamp	1	090142
Tape Thimble	1	514-504
Liquid Seal	1	See Chart on Next Page*
Tank Bracket	**	JB3435-1
Ventilator	***	JB3555-2

\* Substitution of any liquid seals on next page is at no additional cost.

\*\* One Bracket for first 10 feet

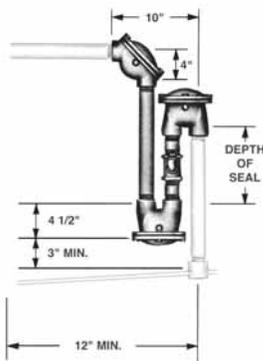
\*\*\* Ventilator not included in Kit; specify separately and price.



### KIT NUMBER 14 - TURBULENT SPHERICAL TANK

DESCRIPTION	NO. REQ'D.	KIT 14B CLASS "B"	KIT 14C CLASS "C"
Float, Pan Type	1	JB3010-21	JB3031-1
Pulley, 90 , 1-1/2" NPT	1	9399-13450	9399-13460
Pulley, 45 , 1-1/2" NPT	2	9399-13480	9399-13490
Guide Wire Spring Assy.	2	JB3486-11	JB3486-11
Anchor Bar	1	JA3540-3	JA3540-3
Tape Clamp	1	090142	090142
Tank Bracket	2	JB3435-1	JB3435-1
* Cable Block Valve	1	93421-21*	93421-21*

\* Cable Block Valve not included in Kit



### LIQUID SEALS MAXIMUM TANK PRESSURE WITH FLUIDS USED

PART NO.	SEAL DEPTH	ETHYLENE GLYCOL (oz./sq. in.)	OIL( 0.8 sp. gr.) (oz./sq. in.)	CLASS
JC3603-10	8-1/2	5.2	3.9	A
JC3603-11	9-1/2	5.9	4.4	A
JC3603-12	11-1/2	7.1	5.3	A
JC3603-13	13-1/2	8.3	6.2	A
JC3603-14	15-1/2	9.6	7.2	A
JC3603-15	17-1/2	10.8	8.1	A

Seal depth over 17-1/2 are special, consult factory for pricing. When liquid seal is used; the next highest tank height should be used on the gauge head (TABLE II B).

Liquid seal Model 93603 variable depth seal retains tank vapor space pressure and vacuum over the range indicated. Aluminum body. PVC body available consult factory.

Liquid Seal Specifications		
Dimensions in Inches	Max. Tank Pressure oz/sq. in	
	Ethylene Glycol	Lubricating Oil
8 1/2	5.2	3.9
9 1/2	5.9	4.4
11 1/2	7.1	5.3
13 1/2	8.3	6.2
15 1/2	9.6	7.2
17 1/2	10.8	8.1

Anti-freeze Solution 1.07 Sp. Gr. Med. Weight Lubrication Oil 0.8 Sp. Gr. NOTE: Seal depths over 17 1/2" available. Specify if required.

### ADAPTER

PART #	DESCRIPTION
9202-11000	To Mount Model 92021 gauge to an existing Model 92006 Gauge Mounting Bracket

NOTE: Model 92021 replaces models:

92006, 92007, 92105, 92106, 93206, 93207,  
93275, 93274, 92020

### A. FLOATS

DESCRIPTION	PART #
304 SS (11-3/4" DIA)	JB3010-7
Monel (11-3/4" DIA)	JB3010-4
(11-3/4" DIA) Max Pres 50 psig.	JB3031-1
304 ss Foamglass (9" x 12" x 3")	JC3000-1
Plastic	9399-11000
* 304 SS (11-3/4" DIA)	JB3010-8

\* For asphalt service only

### B. PULLEY ASSEMBLIES Upgrades- 1-1/2" NPT CONNECTION - 90 DEGREE

DESCRIPTION	PART #
316 SS Housing 316 SS Wheel	LB270-692
Aluminum Housing 316 SS Wheel	LB270-649
Nodular Iron Housing 316 SS Wheel	LB270-651
PVC Housing/Delrin Wheel	BB3560-012

### C. LIQUID SEALS - 1-1/2"NPT CONNECTIONS - 8-1/2" DEPTH (KIT 13 Only)

DESCRIPTION	PART #
All 316 SS	LA277-536-21
Aluminum Housing 316 SS Wheels	LA277-536-12
Nodular Iron Housing	LA277-536-6
All PVC	LB277-543

### D. ANCHOR BAR - 13-1/4"

DESCRIPTION	PART #
All 316 SS	JA3540-4

### E. GUIDE WIRE SPRING ASSEMBLIES

DESCRIPTION	PART #
All 316 SS	93486-18
All 304 SS	93486-12

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