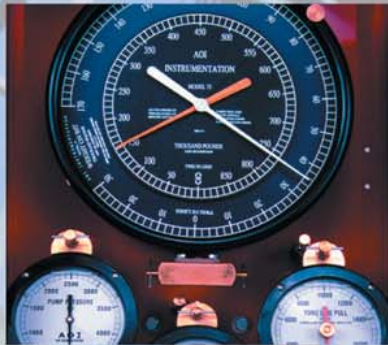
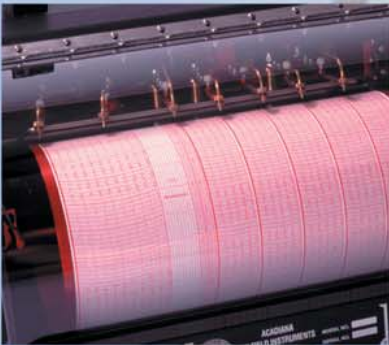


# AOI

## Instrumentation®



## CATALOG



## The AOI Advantage

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Years of real-world experience working on rigs in the oil and gas drilling industry means AOI personnel understand the tough, demanding requirements of your drilling operations and your critical need for the best, most dependable tools.

AOI has a proven track record of delivering products and services worldwide — backed by the integrity and commitment to provide the individual attention necessary to meet your specific needs.

Whether you need a simple, rugged, traditional tool or a complete state-of-the-art electronic instrumentation system, AOI takes pride in assuring you the highest quality, most cost-effective product for the job.

## Quality

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AOI is committed to providing products and services that meet or exceed your expectations, backed by the individual attention you deserve.

## To Order

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**Toll Free Phone  
(USA only):** 800-972-1676

**Phone:** 337-837-1676

**Fax:** 337-837-6599

**E-mail:** [sales@aoiinstrumentation.com](mailto:sales@aoiinstrumentation.com)

*For detailed information about products described in this catalog, contact AOI, or download PDF datasheets from the AOI website:  
[www.aoiinstrumentation.com](http://www.aoiinstrumentation.com)*

*AOI maintains full material traceability and certification on all parts.*

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3rd Edition - April 2005

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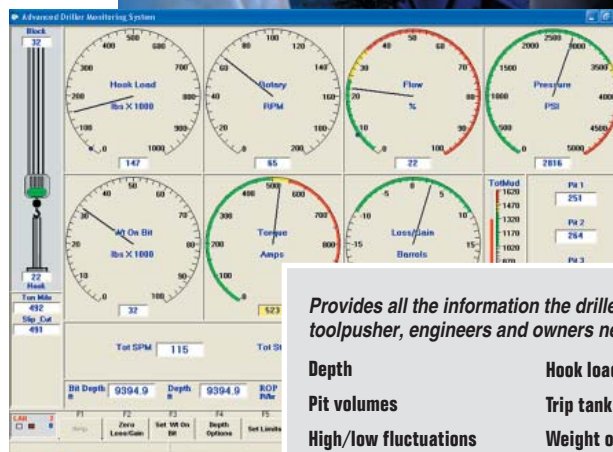
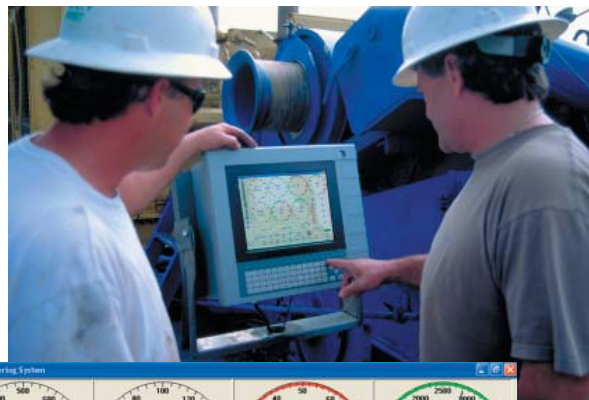
### Advanced Driller Monitoring System (ADMS)

**Easy-to-use system delivers crucial, real-time drilling data to drillers, toolpushers, and rig owners—at a glance**

The AOI Advanced Driller Monitoring System™ delivers crucial drilling parameters at a glance — providing an early warning system that can instantly identify problems such as drilling breaks, flow deviations, and pressure losses. The ADMS displays reliable and accurate real-time drilling data, enabling drillers to see signs of imminent well kicks and other deviations that can make the difference between a safe well and a costly and dangerous blowout.

#### Features and Benefits

- ❑ Displays information in **easy-to-read** graphical tables, dials, bar graphs, and charts, in both analog and digital formats, so the operator can quickly see trends at a glance. And each workstation display—rigsite and remote—is independently customizable to suit the needs of the specific user.
- ❑ Driller can set high and low **alarms**, for quick response to potential problems.
- ❑ Log screens display **current conditions, past conditions, and trends**, enabling timely and comprehensive analysis to optimize drilling and reduce costs.
- ❑ **On-screen messaging** provides quick communication between the driller on the rig floor, the toolpusher, and corporate headquarters.
- ❑ IADC® **morning reports** available with the touch of a button.
- ❑ **Data transfer via Internet, direct connection, LAN, or satellite, for efficient rigsite and remote monitoring.**
- ❑ Available 8-Pen Electronic Recorder and any sensor you need to meet your special drilling requirements.
- ❑ **Rugged driller's display unit includes integrated monitor and touchpad keyboard**, for dependable operation in tough environments. **Touchscreen** models also available.
- ❑ **Hot keys** let the driller and operator instantly perform important functions and access crucial data.
- ❑ Digital displays provide accurate indications and make it **easy to customize configuration settings.**



*Provides all the information the driller, toolpusher, engineers and owners need:*

Depth	Hook load
Pit volumes	Trip tank
High/low fluctuations	Weight on bit
Pump pressure	Pipe tally
Rate of penetration	Ton miles
Rotary/top drive RPM	Bit depth
Rotary/top drive torque	Block position
Total gas	Slip in/out
Total mud volume	And more...

### The AOI Advantage

- **Rig-tested in tough drilling environments around the world to meet AOI's demanding quality standards.**
- **Driller-tested, easy-to-use controls and gauges.**
- **Custom planning and installation ensures the best and most cost-effective system for each rig's specific requirements.**
- **Individual help-desk support from AOI's experienced technical staff provides efficient problem resolution.**
- **All authorized users can access data — rigsite and offsite.**
- **All logged data is stored in an Access® database, enabling easy-to-use, comprehensive reports and queries.**



## System Components

### Data Acquisition Center

Rugged enclosure that contains the CPU, power supplies, and hardware that monitors and acquires data from sensors.



### Driller's Display Unit

Driller's workstation, located on the rig floor. Fully self-contained and built to withstand tough weather conditions. Includes an integrated touch keypad. Touchscreen models also available.



### Remote Display Units

Workstations that display data at the rigsite for the rig operator and offsite for others, such as the rig owner. Each workstation includes a computer, monitor, keyboard, and mouse.



### Advanced Drill Monitor software

AOI software application that acquires data from sensors and displays data on ADMS workstations.

User-configurable, enabling the rig operator to customize data display for the needs of each specific drilling situation.

Runs on Microsoft® Windows®, enabling users to quickly get up to speed, reducing system administration headaches, and enabling drilling data to be used across a variety of standard business applications.

## Optional Equipment

**Remote Slave Monitors.** Monitors that display real-time drilling data. Can be conveniently located anywhere on the rig. As many as 4 monitors can be connected to each Remote Display Unit.

**Sensors.** AOI can provide any sensor you need to optimize data acquisition for each rig.

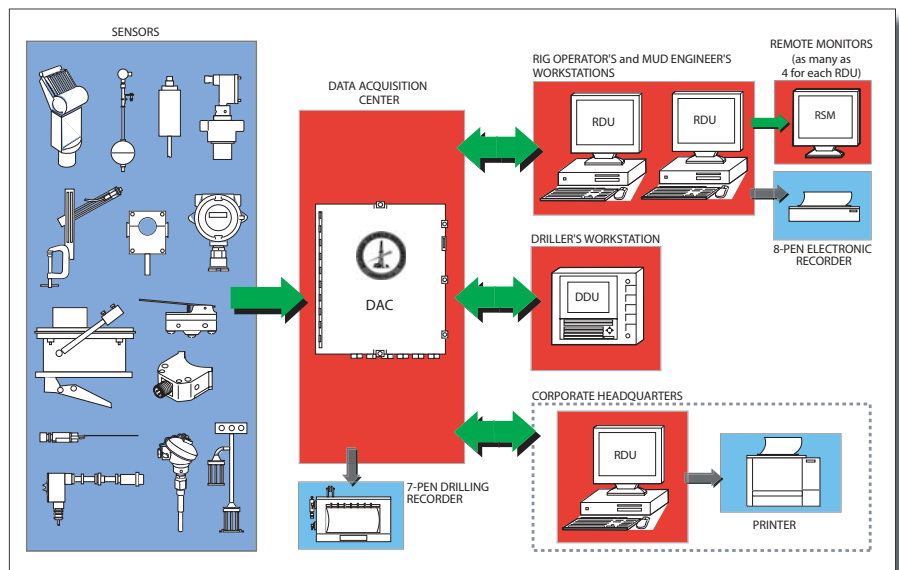
**Drilling Recorder.** Prints drilling data on 12-hour or 24-hour charts.

**8-Pen Electronic Recorder.** Can be connected to a Remote Display Unit to provide printouts of drilling data.

### Enhanced Communication Options:

**Satellite System.** Communication system that enables rig personnel to stay in contact with offsite staff and business partners via direct, secure, broadband Internet connection.

**WITS Protocol Level 0.** Fast, secure data exchange for rigsite service companies via the WITS protocol, level 0.



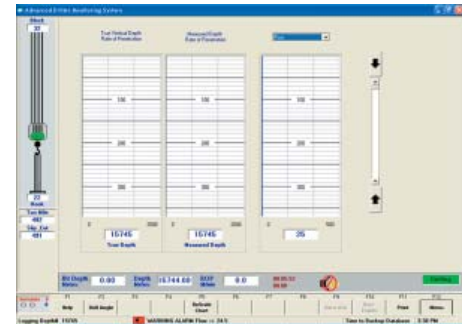
## ADMS displays real-time drilling data in easy-to-read graphical and digital formats — rigsite and offsite



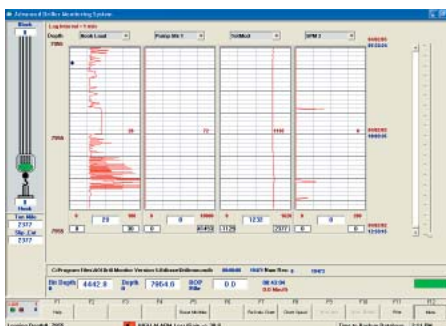
**Main screen** Displays drilling data in graphical and digital formats.



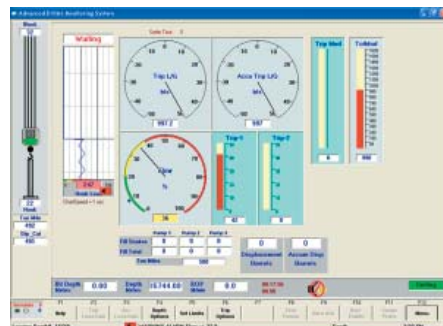
**Digital screen** Two screens can display as many as 40 gauges in digital format. Each screen can be configured to display 2, 4, 6, 8, 12, or 20 digital gauges.



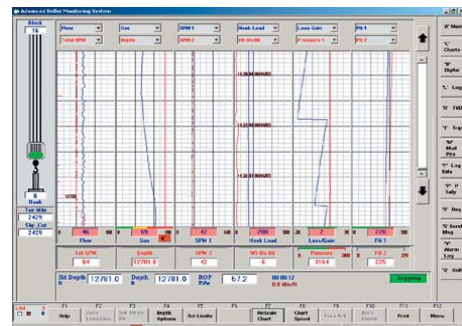
**TVD screen** Displays graphs that indicate true vertical depth and true measured depth, along with a similar graph for a logged variable the driller or rig operator sets.



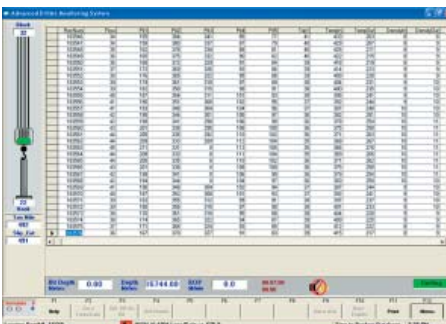
**Log screen** Enables the rig operator or owner to view detailed information in easy-to-read graphical format, for as many as 4 logged variables at a time.



**Trip screen** Displays trip data such as total mud quantity, trip mud quantity, and the current state of trips (flowing, filling, stopped, or waiting).



**Trend screen** Displays continuous, real-time drilling information for as many as 12 variables, enabling the rig operator or owner to track trends.



**Log Data screen** Displays information from the ADMS database, enabling rig operators and owners to perform detailed analysis.



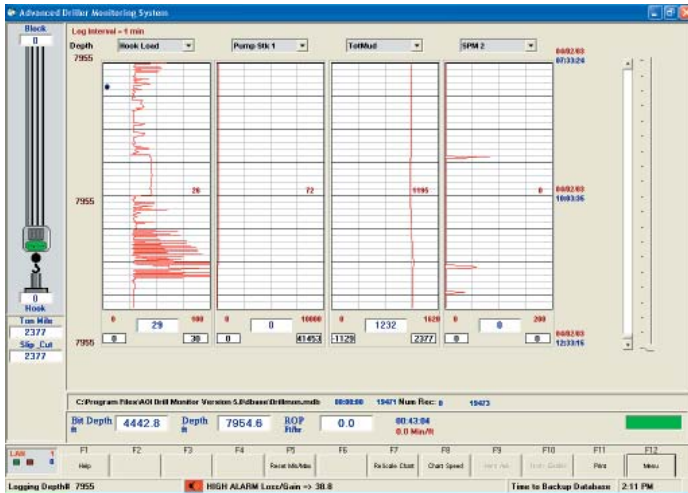
**Mud Pits screen** Displays data about mud and trip pits, including total mud loss, gain, and flow.



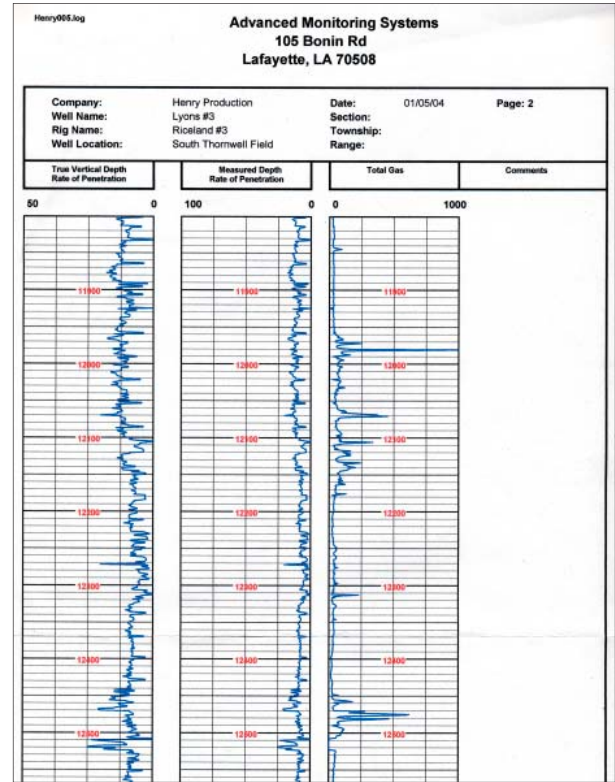
**Pipe Tally screen** Enables the driller to add pipe stand and bottom hole assemblies to the ADMS system during tripping or drilling.

## Get crucial data at a glance with on-screen and printed logs

Detailed, comprehensive, easy-to-use logs enable rig owners, operators, and engineers to perform valuable trend analysis to improve drilling efficiency and reduce drilling costs.



Log screen



ROP/TVD Log

## State-of-the-art security for your drilling data

### The AOI Advantage

Unlike other drilling data systems, your data, logs, and reports are not stored in an offsite database that can be accessed by users of many different companies. With ADMS, your data is archived on a password-protected, rigsite computer accessible by your authorized personnel, both rigsite and offsite.

AOI's ADMS protects your drilling data, both on and off the rigsite. On the rig, a reliable local area network (LAN) assures secure data transmission, with Internet connectivity available for rigsite and offsite communications.



### AOI Satellite System

---

***Provides secure broadband communication with your rig wherever you are, wherever you go***

Enables rig personnel to stay in contact with offsite staff and business partners via direct, secure, broadband Internet connection. Provides connectivity for as many as 3 rigsite workstations, as well as 2 phone lines for voice, fax, or data.

The Satellite System can be used with AOI's Advanced Driller Monitoring System (ADMS) for speedy, secure rigsite and offsite monitoring and analysis of rig drilling data via any device that can connect to the Internet.

- Your offsite Internet devices can access an unlimited number of password-protected ADMS rigsites.
- Provides broadband Internet connectivity to offsite devices such as telephones, laptops, and faxes.
- Delivers true real-time communication. Unlike systems that route data through offsite servers, the AOI Satellite System

#### ***The AOI Advantage***

All data is stored on password-protected computers controlled only by you, accessible only by authorized personnel, both rigsite and offsite.





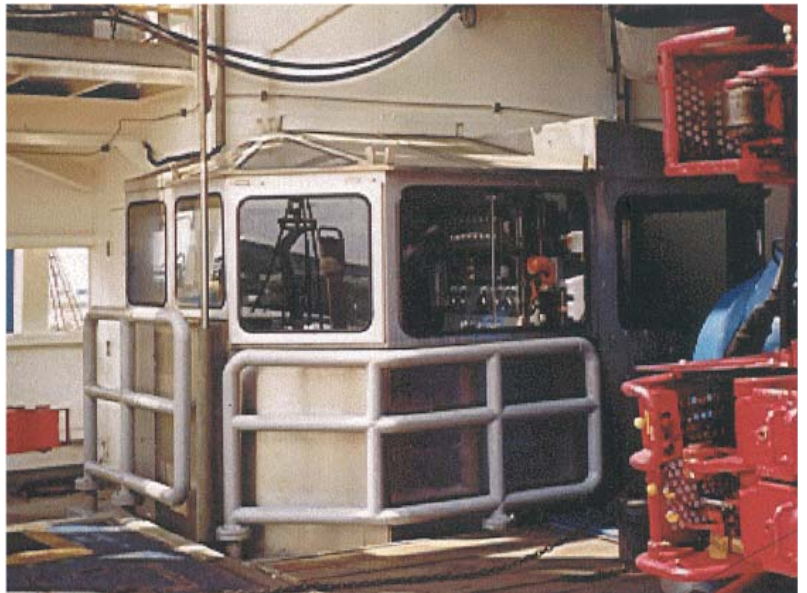
## Anchor Winch Houses and Custom Drillers' Houses

***Modular houses custom-designed to your specifications increase drilling efficiency and reduce costly problems***

Custom-designed to your exact specifications, AOI Anchor Winch Houses and Custom Drillers' Houses integrate the specific instruments and systems you need in a modular design that improves operator efficiency and streamlines drilling processes. Experienced AOI engineers position controls in logical groupings for intuitive, easy use, so the driller can instantly see the information needed to maximize drilling efficiency and prevent costly blowouts.

### Features

- ❑ Can include climate control systems.
- ❑ Painted and finished to your specifications.
- ❑ Meet or exceed international standards for use in hazardous areas.



*Custom Driller's House*



*Anchor Winch House*

### ***The AOI Advantage***

Experienced AOI designers and engineers simplify and streamline your rig outfitting project, including design, equipment selection, manufacturing, delivery, and setup.

- Easy-to-use, ergonomic rig controls enhance operator performance and reduce distractions.
- Effective, creative, efficient solutions overcome size and space limitations.
- Built to last and engineered to operate in extreme environments.

## PMMS-1000 Pneumatic Mud Monitoring System

***State-of-the-art system provides precision mud deviation measurement***

The AOI PMMS-1000 Pneumatic Mud Monitoring System indicates mud deviations with an accuracy of  $\pm 1$  BBL. Clearly readable 6-inch gauges quickly indicate sudden mud changes caused by gas intrusion or formation breakdown. The system consists of **Gauges, Console, Flow Sensor, Stroke Counter**, and **Pit Probes**. Gauges can be mounted with other gauges in a stainless steel console or used as individual, freestanding units.

- Visual and audible loss/gain alarms can be set to activate at specific mud volumes and percentages of return flow – increase and decrease – for immediate notification of deviation.
- Most components available from manufacturers world-wide as standard off-the-shelf items – no need for printed circuit boards that cannot be repaired onsite.
- Gauges indicate total volume in pitroom for surveillance by pit tender – no need for string and nut.
- Large, easy-to-read 6-inch gauges.
- Readouts can be duplicated for remote locations, such as a main office, without additional sensors.
- Mechanical pneumatics enable easy troubleshooting and service by rig maintenance personnel – no need for costly high-tech electronics in remote locations.
- Lower initial investment and lower maintenance costs



PMMS Console



#### Features

- ☐ Standard indicators include:
  - Loss/Gain Indicator with high/low alarms
  - Total BBLs Indicator
  - Percent of Return Mud Flow Indicator with high/low alarms
  - Pump Stroke Counter and Pump Rate Indicator
  - Pit Room Total BBLs Indicator.
- ☐ Stainless steel vertical pit level sensor probes to a depth of 25 feet.
- ☐ Approved for hazardous locations.
- ☐ Gauges can indicate measurements for a single pit or total measurement for multiple pits.
- ☐ Pump Stroke Counter and Pump Rate Indicator feature a digital display in a stainless steel case and a safe lithium battery—eliminating the need for a hazardous 110 VAC.
- ☐ Mountable in a drilling console or in a freestanding unit located near the driller.
- ☐ Provides continuous surveillance of mud pits.
- ☐ Measurements can be recorded on 12-hour or 24-hour circular charts.



## Drillers' Consoles

***Integrated systems combine state-of-the-art electronic instrumentation and drilling control systems***

AOI operations consoles deliver maximum efficiency and performance for land and offshore drilling. AOI can manufacture consoles, houses, and instrument labs to keep your drilling operation running at optimum efficiency.

AOI offers a selection of standard consoles that can be customized for the specific requirements of your drilling environment.

### Features

- ❑ A wide range of gauges, controls, and data acquisition instruments available for monitoring, controlling, and recording, such as:
  - Bit and hook weight
  - ROP and depth
  - Rotary RPM and torque
  - Pump pressure and speed
  - Mud flow, gain, and loss
  - Mud temperature and density
  - Hydrocarbon gas
- ❑ Consoles can incorporate AOI products, as well as products from other suppliers to provide the optimum solution for your particular drilling operation.
- ❑ Console enclosures can be manufactured from 316L CRES steel for maximum durability in corrosive offshore environments.
- ❑ Meet or exceed domestic and international standards for hazardous area use.



- Easy-to-use, ergonomic rig controls enhance operator performance and reduce distractions.
- Effective, creative, efficient solutions overcome size and space limitations.
- Built to last and engineered to operate in extreme environments.
- Quality inspections and testing ensure



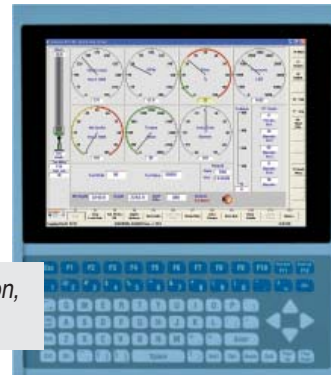
For more information,  
see page 4.



## Rig Floor Workstation

An integral component of AOI consoles, the AOI **ADW 8600 Rig Floor Workstation** displays a variety of important data, with a display that's easy to read even in sunlight.

And when you use the workstation as part of the AOI Advanced Driller Monitor System (ADMS), crucial drilling information and office messages are instantly available in a single workstation—clearly displayed in graphical and digital formats. Customizable screens show trends, torque measurements, high/low fluctuations, pump counts, pipe tally, and much more.



*Rig Floor  
Workstation*

## Advanced Driller Monitoring System driller-friendly features

- Highly customizable screens display the important data the driller needs.
- User can set high and low alarms.
- Easy-to-use, graphical analog gauges display information such as rotary RPM, torque, and pressure.
- Log screens display current conditions, past conditions, and trends.
- Displays system data such as file sizes and available hard drive space.
- User-configurable hot keys quickly display important data.

Anchor-type Weight Indicators

*Instant, accurate indications of total hook load and net weight on bit enable faster, more efficient drilling*

Panel-mounted as an integral part of drillers' consoles or box-mounted for portability, AOI hydraulic deadline Anchor-type Weight Indicators help the driller maintain consistent weight on bit for faster, more efficient, and more economical drilling.

Features

- ❑ Custom configurable with your choice of instruments:
  - Mud pump pressure gauge
  - Mud pump stroke meter (SPM)
  - Rotary table meter (RPM)
  - Electric torque meter
  - Tong-torque gauge
- ❑ Models available for deadline loads of 30,000 to 200,000 pounds.
- ❑ Gauge includes outer dial for direct weight-on-bit reading and inner dial for total hook load.
- ❑ Includes vernier bit weight indicator with 4:1 sensitivity for highest possible accuracy.
- ❑ Includes a high pressure hose and disconnect fittings.
- ❑ Dampers stabilize pointer in case of rough drilling or jarring.

- Large, easy-to-read gauge
- Compatible with all industry-standard deadline anchors
- Built to last – delivers accurate measurements even in extreme drilling and environmental conditions



Anchor-type Weight Indicator Models

Model	Maximum Load (pounds)	Lines	Indicator Diameter (inches)
200	200,000	10, 12, 14, 16	16
150	150,000	10, 12, 14, 16	16
125	125,000	10, 12, 14, 16	16
100	100,000	8, 10, 12, 14	16
75	75,000	6, 8, 10, 12	16
50	50,000	6, 8, 10, 12	16
40	40,000	4, 6, 8, 10	12 or 8½
30	30,000	4, 6, 8	8½ or 6



## Deflection-type Weight Indicator

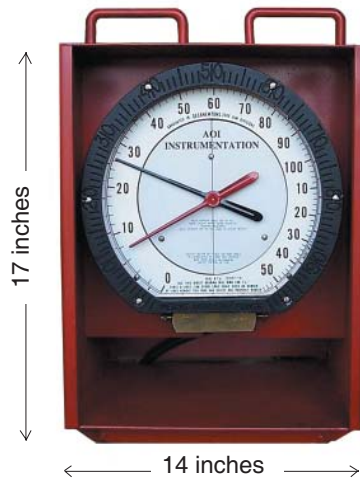
**Compact, versatile,  
portable weight indicator  
for small drilling and workover rigs**

Designed for use on small drilling units, the AOI Deflection-type Weight Indicator is easy to move from rig to rig. The Weight Indicator system consists of a **Gauge** and a **Deadline Diaphragm**, connected by a high-pressure **Hose**.

The Deadline Diaphragm converts line-load into a hydraulic pressure signal that is transmitted to the gauge.

All system components fit inside a steel container for convenient, compact storage. Built-in handles make the entire system easy to transport.

Gauge and Steel Container



Deadline Diaphragm



- **Ready for immediate use** — Each system is assembled, loaded with AOI indicator fluid, calibrated, tested, and sealed before shipment.
- **Adjustable dampers** allow operator-controlled pointer sensitivity.
- **Can be mounted near the driller or on the mast or derrick, for optimum setup in any drilling situation** — avoiding problems that can result from deadline-mounting, such as buffeting by line vibration.
- **Equipped with 10 different dials** calibrated for number and size of line in pounds, kilograms, or decanewtons, for easy, flexible measurement readings.
- **Rugged, compact container with built-**

### To order specify:

- Size of rig
- Derrick capacity in pounds
- Size of drilling wireline
- Number of lines strung
- Hose length

### Features

- Easy-to-read standard 12-inch gauge.
- For superior accuracy, gauge includes two pointers — a primary pointer for hook load, and a secondary vernier pointer with a 6:1 ratio for indicating small weight changes.
- Durable, compact, steel container included with standard system. Additional boxes available with space for two 6-inch gauges, three 5-inch meters, and one 12-inch circular chart recorder.
- Deadline diaphragm attaches easily to wireline and accommodates 7/8 to 1¼-inch line.
- 48,000-pound maximum single-line load (with 1-inch cable).
- Standard 25-foot hose. (Other lengths available.)

Midget and Super Midget Weight Indicator Systems

*Rugged, portable weight indicator systems ideal for small rigs and well service units*

Housed in sturdy portable consoles, AOI hydraulic Midget and Super Midget Weight Indicator systems provide accurate weight indications for small rigs and well service units.

Each system includes an **Indicator**, a **Load Cell**, and a **Hydraulic Hose**.

Features

- ❑ Hydraulically operated — loaded with hydraulic fluid before shipment
- ❑ No external power source required
- ❑ Accurate measurements in extreme conditions — operational in ambient temperature range of -50° to 150° F (-45° to 65.5° C)
- ❑ Accuracy as shipped from the factory of ± 1/2 of 1 percent of full scale capacity
- ❑ Maximum capacity of 25,000 pounds per line (Midget) and 30,000 pounds per line (Super Midget)



Indicator in Metal Console



101260-210  
Non-spin Load Cell for  
Midget Systems



AO16  
Load Cell for  
Super Midget  
Systems

Midget and Super Midget Weight Indicator Systems

System	Maximum Load	Load Cell
Midget	25,000 pounds	AO16
Super Midget	30,000 pounds	101260

To order specify:

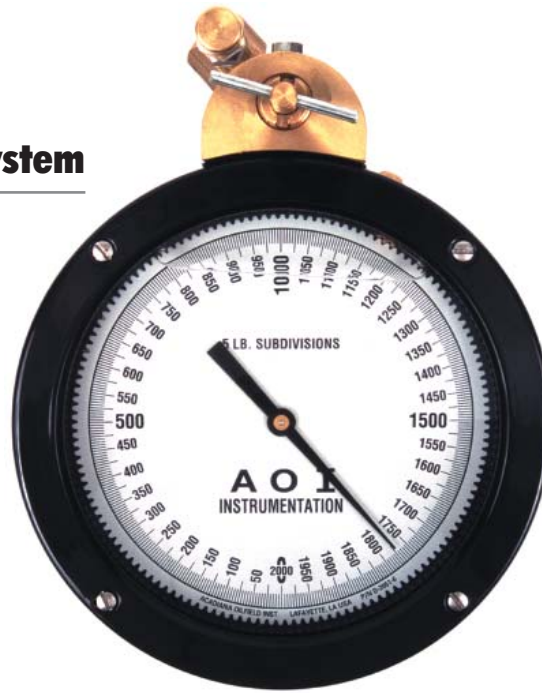
- Size of rig
- Derrick capacity in pounds
- Size of drilling wireline
- Number of lines
- Required hose length (25-foot standard)

## Single Line Weight Indicator System

**Reliable, accurate, wireline-type weight indicator protects downhole tool investment**

AOI Single Line Weight Indicator systems provide accurate measurement of downhole tool weights during wireline operations and heel or floor block applications.

Ideal for use by wireline service trucks, each hydraulically-operated system includes a **Tension Load Cell** and a **Gauge**, connected by a **Hydraulic Hose**.



Indicator



Tension Load Cell

### Features

- ❑ AOI assembles, calibrates, loads with fluid, and tests each system before shipment, and includes calibration and pull test certificates in the shipment.
- ❑ Available in a range of capacities: 2000, 4000, 5000, 6000, and 10,000 pounds.
- ❑ Heavy-duty hydraulic hoses, available in lengths of 50, 75, and 100 feet.
- ❑ Easy-to-read 6-inch dial gauge faceplate displays weight in pounds, kilograms, and decanewtons.
- ❑ Integral damper assembly increases pointer sensitivity for accuracy even with the smallest loads.
- ❑ Additional sizes and configurations to meet your specific needs are available upon request.

### Single Line Weight Indicator Systems

Type	Capacity	Load Cell Description
A64 Series	2,000 pounds	Light-weight aluminum tension load cell
A80 Series	4,000, 5,000 pounds	Steel tension load cell
A653 Series	6,000, 10,000 pounds	Heavy-duty piston-type cylinder

- Calibration to  $\pm 0.5\%$  accuracy ensures reliable readings, reducing loss of valuable downhole tools.
- Rugged design for operation in extreme environments, within ambient temperatures of  $-29^{\circ}$  to  $49^{\circ}$  C ( $-20^{\circ}$  to  $120^{\circ}$  F).
- Available in a variety of capacities and line lengths, giving you the flexibility to choose the right solution for any job.
- Operator-adjustable pointer response time and calibration controls for custom onsite adjustment.
- Offers years of cost-effective, low



## Measure Head Weight Indicator Systems

### ***Rugged weight indicator systems for precision force and tension measurements***

AOI Measure Head Weight Indicator systems provide precise, accurate measurement of downhole tool weights during wireline operations. Each hydraulically-operated system includes a **Compression Load Cell** and a **Gauge**, connected by a **Hydraulic Hose**.

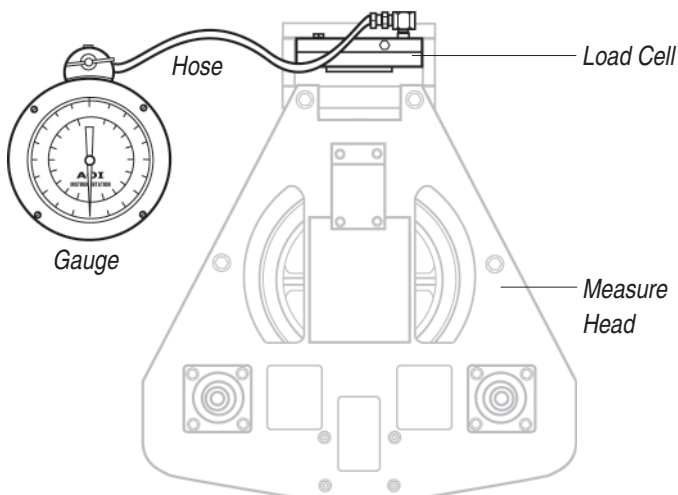


Gauge  
(A71-series)



12 Square-inch  
Compression Load Cell  
(40-612)

- Precision ball bearing gauge movements and calibration to  $\pm 0.5\%$  accuracy ensure reliable readings, reducing loss of valuable downhole tools.
- Rugged design for operation in extreme environments, within ambient temperatures of  $-29^{\circ}$  to  $49^{\circ}$  C ( $-20^{\circ}$  to  $120^{\circ}$  F).
- Operator-adjustable pointer response time and calibration controls for custom onsite adjustment.
- Offers years of cost-effective, low maintenance



#### Features

- ❑ Each system assembled, calibrated, loaded with indicator fluid, and tested before shipment.
- ❑ Standard gauges include 10:1 ratio vernier scale.
- ❑ Single-pointer gauges available.
- ❑ Easy-to-read 6-inch dial gauge faceplate displays weight in pounds, kilograms, and decanewtons.
- ❑ **Gauges have precision ball bearing movements.**
- ❑ Available in a range of capacities: 5000, 6000, 10000, and 20000 pounds.
- ❑ Integral damper assembly increases pointer sensitivity—for accuracy even with the smallest loads.
- ❑ Custom logos available for gauges.
- ❑ Compression load cells and replacement diaphragm rubbers available for 2- and 3-foot measure heads.

## Bulk Tank Systems

### *Accurate load measurements for bulk tanks and hoppers*

AOI Bulk Tank Systems provide extremely accurate load measurements for bulk tanks and hoppers.

Each system includes a **Gauge**, a **Compression Load Cell** (for bulk tanks) or a **Tension Load Cell** (for hoppers), and a **Hydraulic Hose**.

#### Features

- ☐ Accurate measurements in extreme conditions—operational in ambient temperature range of  $-20^{\circ}$  to  $120^{\circ}$  F ( $-29^{\circ}$  to  $49^{\circ}$  C).
- ☐ Gauge dial faceplates available calibrated in pounds, tons, or kilograms.
- ☐ Operator-adjustable damper smooths gauge pointer sensitivity.
- ☐ Operator-adjustable dial gear rotates the dial for easy tare adjustment.
- ☐ Compression or tension load cells available.
- ☐ Standard 25-foot hydraulic hose, with additional lengths available.
- ☐ Hydraulic hose available in 3/16-inch diameter, single wire braid construction or 1/4-inch diameter, double wire braid construction.
- ☐ Bulk tank hinges available.

#### To order specify:

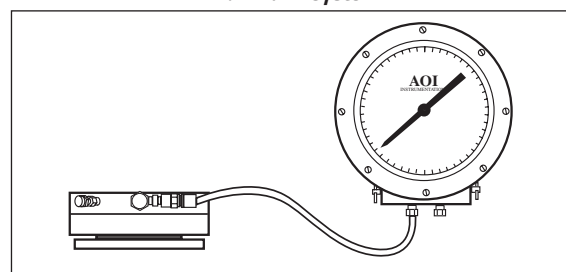
- Sensors required
- Load cell configuration
- Dial capacity
- Hose length



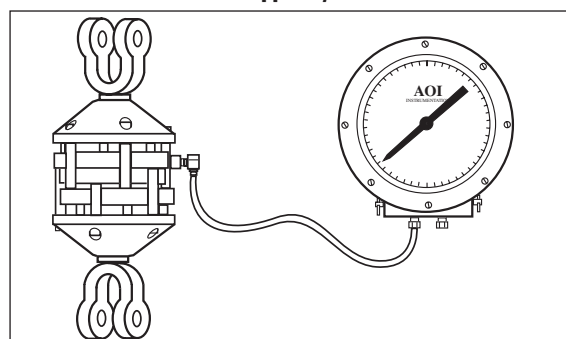
Compression  
Load Cell



Bulk Tank System



Hopper System



### Ton Mile Indicator Systems

**Maximize wire rope lifespan  
and help ensure timely,  
safe slip-and-cuts**

The rugged AOI Ton Mile Indicator Systems provide essential ton mile measurements to protect your equipment investment and improve drilling safety.

Each system includes a **Display Console**, **Weight Transducer Assembly**, **Distance Encoder Assembly**, and **Cables**.



#### Features

- ☐ Indicates ton miles between wireline slippings.
- ☐ Indicates total ton miles between wireline change-outs.
- ☐ Includes always-on, non-stop display of load on each wireline (in tons).
- ☐ Provides user-configurable options including:
  - Display of ton miles, ton kilometers, or mega joules
  - Number of parts-of-line reeving used.

#### **Improves drilling cost-effectiveness and efficiency**

Helps eliminate wasteful, premature slip-and-cuts from being performed while the wire rope still has weeks of useful life.

#### **Enhances rig safety**

Helps ensure timely slip-and-cuts — reducing potentially hazardous wire rip wear.



## Dual Test Circular Recorder

**Portable recorder provides accurate, dependable temperature and pressure recordings**

Perfect for proof-testing, the AOI portable Dual Test Circular Recorder provides temperature and pressure recordings on a 12-inch circular chart.

Built to last, the recorder is housed in a rugged, light-weight, die-cast aluminum case, electrostatically cloaked in a tough polyurethane powder paint. A closed neoprene gasket — non-absorbent to fluids and resistant to oils and most solvents — provides a secure seal between the door and the case.

Available with battery or spring-wound chart drives, a variety of chart speeds, and in configurations of 1, 2, or 3 pens.



### Features

- ❑ Chart drives available in a variety of record lengths:
  - 15, 30, 60, 96 minutes
  - 2, 4, 6, 8, 12 hours
  - 1, 2, 3, 4, 7, 8, 14, 16, 31, 32 days
- ❑ Stainless steel, precision-wound helical-type pressure element with an operating range of 0 – 30,000 PSI (0 – BAR); static pressure range of 500 – 30,000 PSIG
- ❑ Stainless steel thermal system, available in a variety of temperature ranges:
  - 0 to +100, 150, 200, or 300° F
  - (-18 to + 38, 66, 93, or 149° C)
- ❑ For pressures less than 10,000 PSI (689 BAR): 1/4-inch NPT connectors. For pressures greater than 10,000 PSI: Aminco 9/16–18 (1/4-inch ODT) female connectors.
- ❑ Two integral 6-inch pressure gauges with separate operator-adjustable pulsation dampers
- ❑ Can be used with 1502-series diaphragm sensors and boosters
- ❑ Can be directly connected to pressure source (when testing with clean water)
- ❑ Uses durable AOI disposable felt-tipped pens

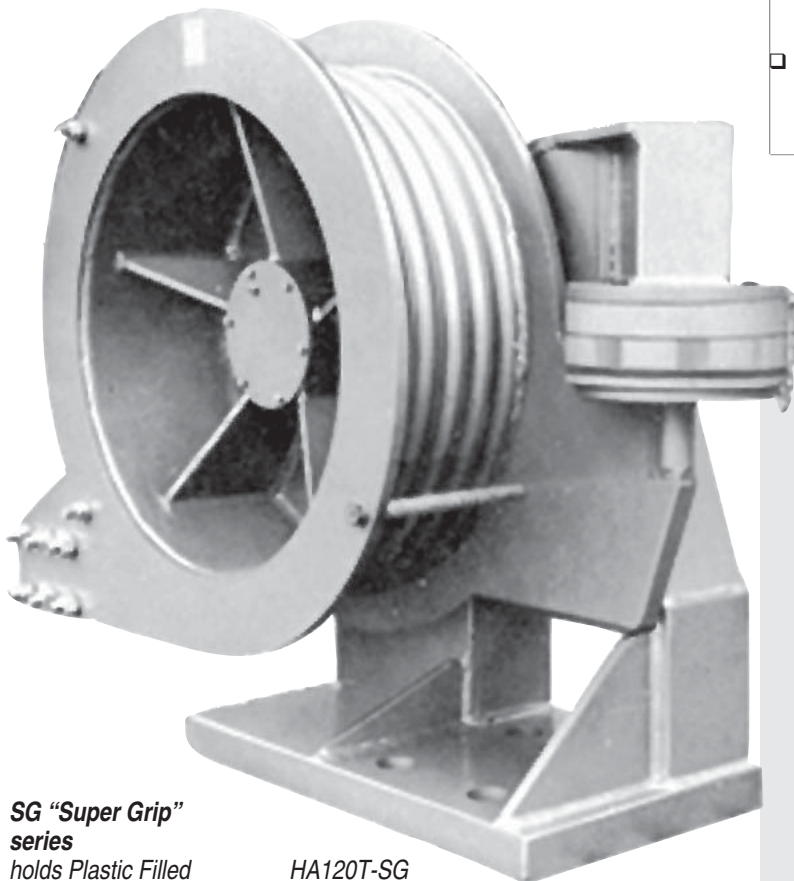
### To order specify:

- Maximum pressure
- Units of measure
- Record length (chart rotation)

## Hercules Deadline Anchors

**Full line of all-weather, quality-built deadline anchors pull capacities from 30,000 to 150,000 pounds**

Constructed with top-quality steel and proof-tested to 150% of rated capacity, Hercules Deadline Anchors are highly accurate, super-strong anchors of exceptional reliability. Hercules Anchors are for use with **AOI Weight Indicators and Load Sensors**.



**SG "Super Grip" series**

*holds Plastic Filled Valley (PFV) wire rope securely*

HA120T-SG  
HA130T-SG  
HA150T-SG

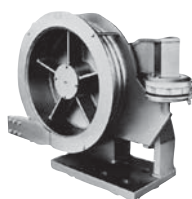
### Features

- ❑ Left-hand models available.
- ❑ Models available to handle wireline sizes from 5/8 inches to 1-7/8 inches.
- ❑ Deadline pull capacities from 30,000 to 150,000 pounds.
- ❑ Models available in a variety of sizes—from lightweight models for mounting on wheel-mounted rigs and on helicopter rigs—to models designed for 2-million-pound drilling masts.
- ❑ Super Grip (SG) Series Anchors tightly grip plastic-filled wire rope—as well as accommodating standard wire rope.

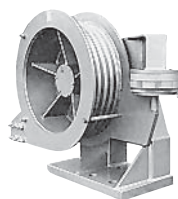
- Center-point mounted drums ensure optimum accuracy.
- Smooth, machine-grooved drum surface extends cable life.
- Heavy-duty, high-grade structural steel construction with tapered roller anti-friction bearings and heat-treated alloy shaft provides a super strong anchor with exceptional durability.
- Proof-testing to 150% of rated capacity ensures superior reliability.
- Durable bronze wireline clamp inserts provide



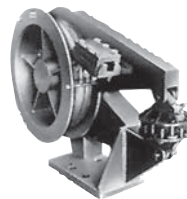
HA150T-SG



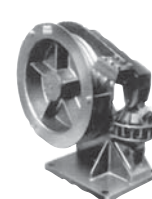
HA130T-SG



HA120T-SG



HA131T



HA129T



HA119T

**Lightweight,  
easy-to-move  
anchors  
for wheel-  
mounted and  
helicopter rigs**



HA118T



HA117T

Model	Line Pull Capacity (pounds)	Load Sensor	Weight Indicator Model	Wireline Sizes (inches)	Drum Diameter (inches)	Weight (pounds)
HA150T-SG	150,000	E551 Compression	150	1 <sup>5</sup> / <sub>8</sub> • 1 <sup>3</sup> / <sub>4</sub> • 2	38	3,300
HA130T-SG	130,000	E551 Compression	125	1 <sup>1</sup> / <sub>2</sub> • 1 <sup>5</sup> / <sub>8</sub> • 1 <sup>3</sup> / <sub>4</sub>	31	2,297
HA120T-SG	100,000	E551 Compression	75/100	1 <sup>1</sup> / <sub>4</sub> • 1 <sup>3</sup> / <sub>8</sub> • 1 <sup>1</sup> / <sub>2</sub> • 1 <sup>5</sup> / <sub>8</sub>	28	1,675
HA131T	100,000	E80 Tension	75/100	(E) 1 <sup>1</sup> / <sub>4</sub> • 1 <sup>3</sup> / <sub>8</sub> • 1 <sup>1</sup> / <sub>2</sub> (EB) 1 <sup>1</sup> / <sub>2</sub> • 1 <sup>5</sup> / <sub>8</sub>	28	1,460
HA129T	60,000	E80 Tension	50	1 • 1 <sup>1</sup> / <sub>8</sub> • 1 <sup>1</sup> / <sub>4</sub>	24	810
HA119T	60,000	E543 Compression	50	1 • 1 <sup>1</sup> / <sub>8</sub> • 1 <sup>1</sup> / <sub>4</sub>	24	820
HA118T	45,000	E542 Compression	40	<sup>7</sup> / <sub>8</sub> • 1 • 1 <sup>1</sup> / <sub>8</sub> • 1 <sup>1</sup> / <sub>4</sub>	16	300
HA117T	30,000	E190 Compression	30	<sup>5</sup> / <sub>8</sub> • <sup>3</sup> / <sub>4</sub> • <sup>7</sup> / <sub>8</sub> • 1	10	150

**To order specify:**

- Size of rig
- Derrick capacity in pounds
- Right or left hand model
- Size of drilling wireline
- Number of lines strung



National Deadline Anchors

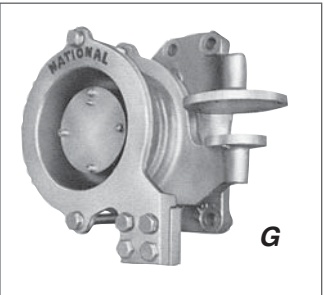
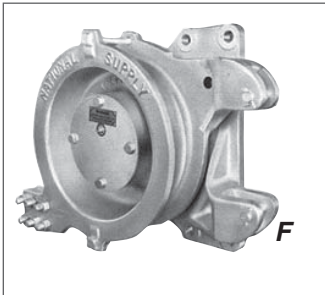
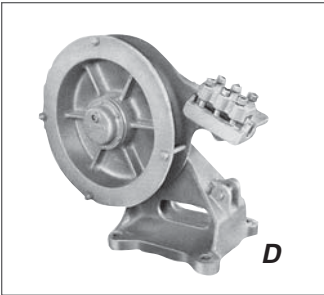
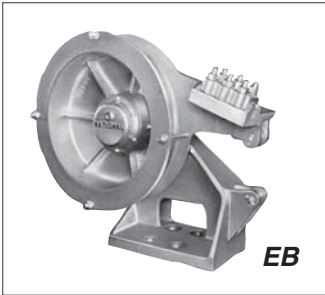
**Deadline anchors provide accurate weight measurements and secure deadlines**

National Deadline Anchors are designed to be used with hydraulic **AOI Load Cells** to provide sensitive weight signals for transmission to **AOI Weight Indicators**.

These anchors also provide a reliable way to secure deadlines, while allowing for fast and easy line-slipping.

Features

- ❑ Models available to handle wireline sizes from 5/8 inches to 1-5/8 inches.
- ❑ Deadline pull capacities from 30,000 to 100,000 pounds.
- ❑ Models available in a variety of sizes—from a lightweight 200-pound model to a heavy-duty 1,560-pound model.



To order specify:

- Size of rig
- Size of drilling wireline
- Derrick capacity in pounds
- Number of lines strung

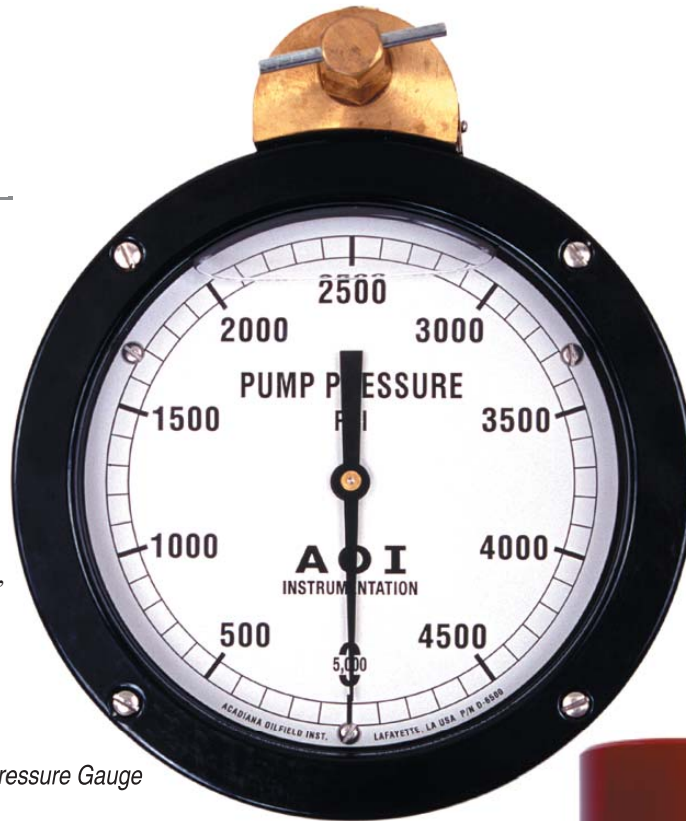
Type	Line Pull Capacity (pounds)	Load Sensor	Weight Indicator Type	Wireline Sizes (inches)	Drum Diameter (inches)	Weight (pounds)
EB	100,000	E80 Tension	E or EB	(E) 1 1/4 • 1 3/8 • 1 1/2 (EB) 1 1/2 • 1 5/8	28	1,560
D	50,000	E80 Tension	D	1 • 1 1/8 • 1 1/4	24	1,075
F	40,000	E160A Tension	FS	7/8 • 1 • 1 1/8	16	385
G	30,000	E190 Compression	G	5/8 • 3/4 • 7/8 • 1	9	200

## Single Pointer Pressure Gauge

**Gauge provides quick, accurate check of mud pump operation**

AOI Single Pointer Pressure Gauge systems help detect mud pump operation problems, such as washed out drill pipes. This convenient gauge can be mounted in a weight-indicator box, on the driller's console, or on the mud pump.

The system consists of a 6-inch **Pressure Gauge**, a **Gauge Protector**, and a high-pressure **Hose**.



Pressure Gauge

### Features

- Standard capacities include:
  - 3,000, 5,000, 6,000, 10,000, and 15,000 psi
  - 210, 350, 420, 700, and 1,000 kg/cm<sup>2</sup>
- Also available in kPA, MPa, and BAR capacities
- Durable 517-152 Gauge Protector mounts with 2-inch NPT sub
- Standard 50-foot hose, with other hose lengths available

- **Easy to mount in a variety of locations:** in a weight-indicator box, in the driller's console, or on the mud pump.
- **Full 360° dial calibration** accurately indicates small pressure changes.
- **Fluid-filled gauge** protects readings from truck or rig vibration.
- **Large, easy-to-read 6-inch, fluid-filled dial face.**
- **Operator-adjustable high-pressure damper** ensures accurate readings.



Gauge Protector



For hose lengths over 50 feet, the AOI 517038 1:1 Piston Separator can be used. (See page 27.)

### To order specify:

- Application
- Length of hose from sensor to gauge
- Required capacity
- Gauge mounting

## Compound Pointer Pressure Gauge

**Dual-pointer pressure indicator systems deliver accurate measurements for mud, cementing, acidizing, and fracturing operations**

AOI Compound Pointer Pressure Gauge systems accurately measure and display pump pressures for downhole cementing, high-pressure hydraulic fracturing, or acidizing oil pay operations. A standard pointer provides a full 360° sweep of the dial, and a vernier pointer offers 4 to 1 resolution for indicating even small pressure changes.

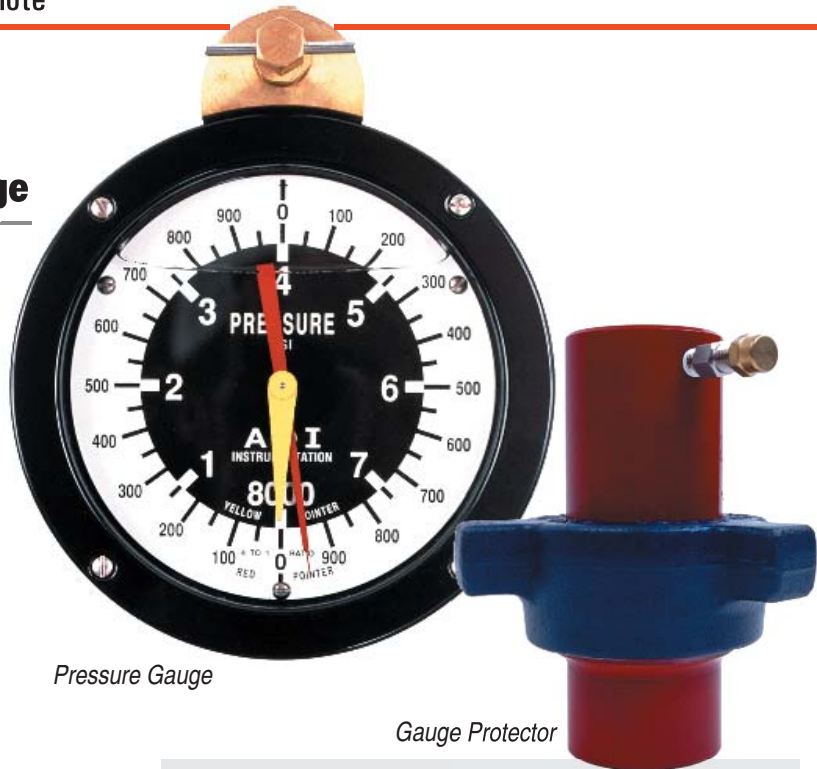
The system consists of a 6-inch **Pressure Gauge**, a **Gauge Protector**, and a high-pressure **Hose**.

### Features

- ☐ Standard capacities include:
  - 4,000, 8,000, 12,000, and 16,000 psi
  - 400, 800, 1200 kg/cm<sup>2</sup>
  - 40, 80, 120 MPa
- ☐ Durable 517-152 Gauge Protector mounts with 2-inch NPT sub
- ☐ Operational in temperature ranges of -50° to +150° F (-45° to +65° C)
- ☐ Accuracy rate of  $\pm 1.0\%$  of full indication
- ☐ Available in box-mount and panel-mount configurations
- ☐ Standard 50-foot hose, with other hose lengths available

### To order specify:

- Application
- Required hose length
- Required capacity
- Gauge mounting



Pressure Gauge

Gauge Protector

- Gauge can be mounted in any convenient location – perfect for use on service trucks.
- Vernier pointer provides 4 times more resolution for the same pressure change – measuring small pressure changes caused by formation breakdown, perforation plugs, and fractures.
- Fluid-filled gauge protects readings from truck or rig vibration.
- Operator-adjustable controls enable steady pointer movement.
- Provides all the advantages of the standard pump pressure gauge, with the added accuracy of the vernier pointer.
- Measurements can be easily recorded by hydraulic circular recorders or electronic remote strip



For hose lengths over 50 feet, the AOI 517038 1:1 Piston Separator can be used. (See page 27.)



## Piston Separator

***Transfers pressure readings  
to gauges and recorders  
in remote locations***

The AOI 517038 Piston Separator is a 1:1 ratio device that transfers well-fluid pressure (such as cement, acid, and mud) to a remotely located gauge or recorder. The Piston Separator handles working pressures up to 15,000 psi delivered through a ¼-inch high-pressure hydraulic hose.

### Features

- ❑ Working pressures up to 15,000 psi
- ❑ Proof test pressure ratings made at 150% of working pressure ratings
- ❑ Volumetric capacity (full stroke):  
13.4 cubic inches (220 cubic centimeters)
- ❑ Mounting pipe size: 2-inch
- ❑ Dimensions:  
Height: 13.25 inches (336 mm)  
Width: 7.50 inches (190 mm)
- ❑ Weight: 29 pounds (with fluid)



Model	Maximum Working Pressure	Description
517038-1	15,000 psi	Separator with welded female sub
517038-2	10,000 psi	Separator with threaded female sub
517038-3	15,000 psi	Separator without sub
517038-4	10,000 psi	Separator with welded female H2S sub and nut
517038-5	10,000 psi	Separator without sub, with H2S nut
517038-6	N/A	Separator only, with nut and female sub of your choice

### Pressure Deboosters

***Reduces high line pressures to enable accurate readings by pressure gauges, transducers, and recorders***

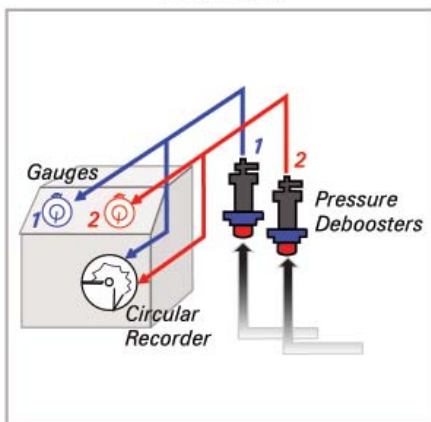
AOI offers a complete line of pressure reduction sending units (PRSUs). These pressure deboosters reduce line pressures associated with fracturing, cementing, and testing operations by a ratio of 4 to 1, a 75% reduction that enables pressure measurements to be safely sent to pressure gauges, transducers, and recorders.



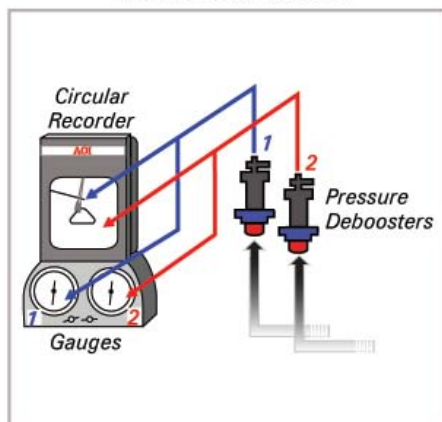
#### Features

- ❑ Reduces line pressure by a ratio of 4:1 (75%).
- ❑ Models available for a range of maximum incoming working pressures: 10,000; 15,000; and 20,000 psi.
- ❑ Available in standard service or H<sub>2</sub>S service models.
- ❑ Enables transmission of pressure readings over a distance of up to 100 feet.
- **Highly accurate** – delivers an accuracy rate of  $\pm 2\%$  of full scale.
- **Ideal for use with AOI pressure gauges, transducers, and recorders** – calibrated for use with AOI pressure deboosters.
- **Available in a variety of models**, so you can choose the right solution for any job.

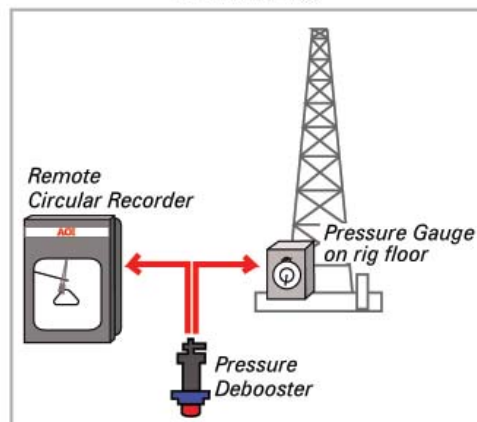
**Installation with console**



**Installation with remote Circular Recorder**



**Installation with remote readout**



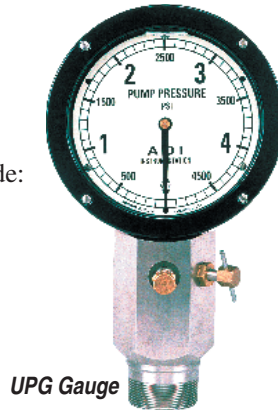
## Unitized Pressure Gauges

***Rugged gauges can easily be read from 60 feet away or more***

The easy-to-read AOI Unitized Pressure Gauges indicate mud pump pressure and standpipe pressure, and can be used on cementing, acidizing, fracturing, and gravel-packing trucks.

### Features

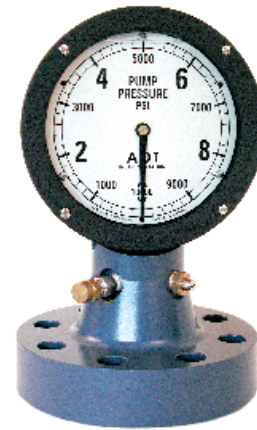
- ❑ Standard capacities (psi) include:
  - 0–1,000
  - 0–3,000
  - 0–5,000
  - 0–6,000
  - 0–10,000
  - 0–15,000
  - and metric equivalents in kg/cm<sup>2</sup>, KPa, MPa, and BAR units of measure
- ❑ Large 6-inch dial face
- ❑ Mounting: 2-inch male NPT
- ❑ Weight: 16 pounds
- ❑ Rugged 17-4 PH stainless steel gauge body
- ❑ Diaphragm or bronze piston with Quad Viton seals



UPG Gauge



UHPG Gauge  
Hammer union base



UFGP Gauge  
Flanged base for secure mounting on blowout preventers, manifolds, and standpipes

- Fluid-filled case lubricates moving components and the pointer damper, for increased reliability and reduced maintenance costs.
- Integral operator-adjustable damper eliminates pointer oscillations.
- Replaceable diaphragm, and checkvalve for loading fluid make on-site service easy.
- Hexagon-shaped gauge body for easy mounting.
- Bourdon tube and movement indicator gives highly accurate readings of mud pump

## Standpipe Mud Pump Pressure Gauges

***Standpipe gauges provide dependable, accurate pressure readings***

AOI standpipe type Mud Pump Pressure Gauges are available for a variety of capacities and operating conditions:

- ❑ Model F Gauge for capacities up to 20,000 PSI
- ❑ Model D Gauge for capacities up to 6,000 PSI



Model D Gauge



Model F Gauge



### Tong Torque Systems

***Accurate torque measurement systems  
reduce drill collar and tool joint failure***

AOI **Tong Torque Systems** indicate the torque applied to drill pipe, drill collars, tubing, and casing while joints are made—important for reducing drill collar and tool joint failure resulting from improper make-up. Two main types of Tong Torque Systems are available:

**TLP (Tong Line Pull) Series** Indicates make-up or break-out torque (in pounds of line pull) for tool joints, drill collars, and drill string components.

**JT (Joint Type) Series** Indicates torque (in foot-pounds) applied to each joint when using power tongs to run pipe or casings.

Each Tong Torque System consists of a **Tension Load Cell** that converts line pull into a hydraulic pressure signal, which it sends to a pressure-sensing indicator **Gauge** through an interconnecting **Hydraulic Hose**. Each system also includes **Mounting Hardware**.

- Heavy-duty, rugged Load Cell includes an integrated cylinder and piston, ensuring a long service life and minimum maintenance.
- Fluid protects working parts of gauge—further reducing the need for repairs and protecting your equipment investment.
- Provides accurate torque indications, reducing drill collar and tool joint failure.
- Gauge pointer can be set to the required torque to give driller a clear target mark.
- Box mount, panel mount, tong clamp and tong handle mount configurations available, providing the flexibility to obtain

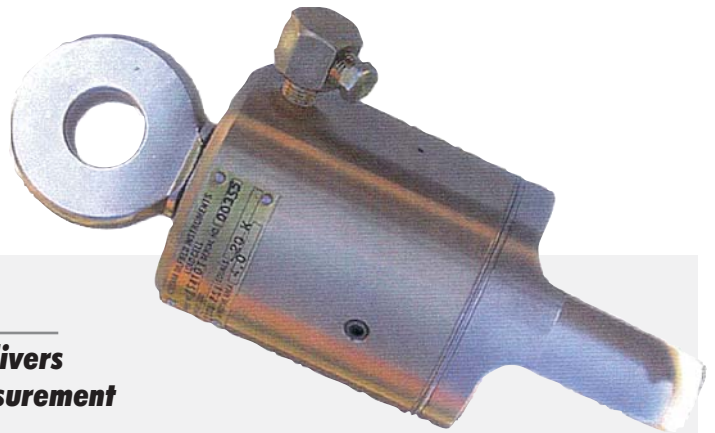


### TLP Series

- ❑ Indicates make-up or break-out torque (in pounds of line pull) for tool joints, drill collars, and drill string components.
- ❑ 6-inch fluid-filled gauge displays line pull.
- ❑ Adjustable target pointer can be set to the desired line pull value so the driller can work to a clear mark.
- ❑ Models and capacities available to work with all manual tongs.
- ❑ A wide range of capacities—from 10,000 pounds to 30,000 pounds of line pull, with metric equivalents available.
- ❑ Models available for permanent installation, or for temporary mounting directly on the tong handle.
- ❑ Combination dials available.

### JT Series

- ❑ Indicates torque (in foot-pounds) applied to each joint when using power tongs to run pipe or casings.
- ❑ Models available for specific makes and models of power tong.
- ❑ Load Cells available in both tension and compression models, for use with any type of tong.
- ❑ Capacities up to 120,000 foot-pounds, with metric equivalents available.
- ❑ Dual-scale models available.



### Tension Load Cell

***Rugged Load Cell delivers accurate torque measurement***

In AOI Tong Torque Systems, the Tension Load Cell transmits applied pull measurements to the indicator gauge.

#### ***The AOI Advantage***

Manufactured only by AOI —  
to AOI's demanding specifications.

- Available in four sizes: 3.68 (5K), 4.0 (20K), 6.53 (25K), and 10.8 (30K) square inches.
- Integral design ensures long service life and minimum maintenance.
- Manufactured entirely from bar stock.
- 100% material traceability.
- Maximum single line pull workloads from 20,000 to 30,000 pounds.

## Electric Rotary Torque System

**Reliable torque measurements  
for rigs that use electric  
motor-driven rotary tables**

Engineered to provide years of accurate, reliable measurement of rotary torque on electric rigs, the AOI Electric Rotary Torque System delivers precision performance.

Each system includes a **Current Transducer** and a **Signal Conditioner**. Other available system components include an **Amp Meter** and an **E/P Transducer**.

### Features

- ❑ Meter can indicate torque in amps, foot pounds, or metric units of measurement.
- ❑ Current Transducer attaches to DC power cable; no electrical connections are required.
- ❑ Signal Conditioner delivers output to meters, E/P Transducer, drilling recorder, and other data acquisition devices.



**Simple design with no moving parts  
reduces maintenance requirements  
and protects your equipment investment.**

### To order specify:

- Meter capacity, in amps
- Meter measurement: amps, or amps vs foot pounds (or metric equivalent)
- Classification of installation area



## Mechanical Rotary Torque System

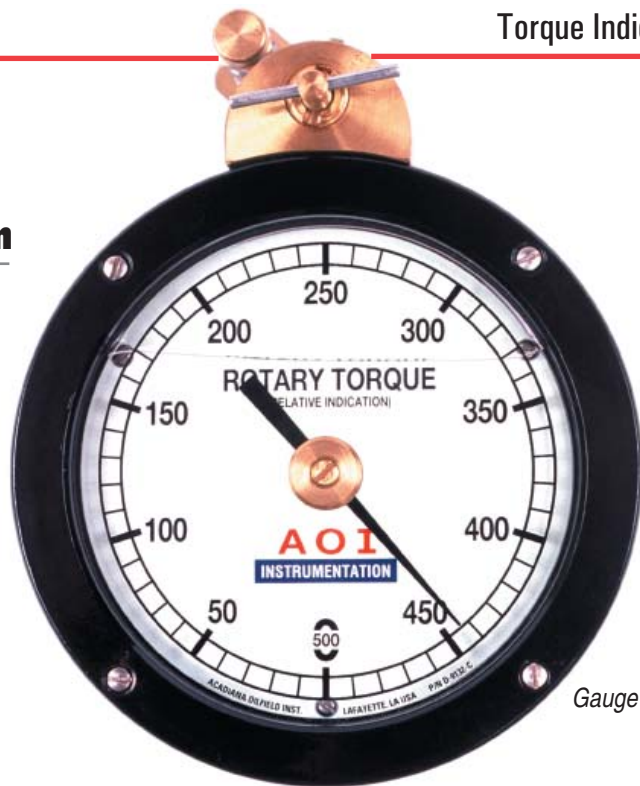
***Delivers reliable torque measurements for rigs that use chain-driven rotary tables***

Available in box-mount or panel-mount configurations, the AOI Hydraulic Rotary Torque System provides accurate indications of changes in torque for rigs that use chain-driven rotary tables. Each system includes an **Idler** assembly and a **Gauge**.

### Features

- ❑ 6-inch fluid-filled Gauge
- ❑ Gauge available in 500 and 1,000 points
- ❑ Gauge has operator-adjustable dial to zero out drill string in order to monitor torque at the bit
- ❑ Standard 25-foot hose, with other hose lengths available
- ❑ Rugged Steel Sprocket available (replaces rubber wheel located in Idler assembly)

- Gauge damper minimizes pointer oscillations caused by drilling and drill string vibration, ensuring accurate readings and increasing the life-span of the gauge.
- Helps driller know when to change drill bits by indicating hole conditions and torque patterns and trends.
- Increases safety and optimizes drilling efficiency by providing warnings about possible twist-offs, locked cones on the bit, out-of-gauge holes, and formation changes.
- Connects easily to AOI drilling recorders



Gauge



Idler

Steel Sprocket



### To order specify:

- Bracket-mount or panel-mount gauge
- Gauge capacity
- Chain size
- Chain width (single or double)
- Hose length (25 feet is standard)

### RPM Rotary Speed Indicator System

***Accurate rotary speed readings help driller optimize drill speed***

The AOI RPM Rotary Speed Indicator System provides exceptionally accurate rotary speed measurements—enabling the driller to optimize drill speed for maximum efficiency. The system includes the **Gauge** and a **Generator** that powers the system.



RPM Gauge



SPM Gauge

### SPM Pump Speed Indicator System

***Quick pump speed readings detect pump or hole problems***

The AOI SPM Pump Speed Indicator System provides quick, easy-to-read pump speed measurements—information the mud pressure gauge does not deliver. The system includes the **Gauge** and a **Generator** that powers the system.

#### Features

- ❑ Available in a variety of capacities, with maximum capacities of 1000 RPM and 500 SPM (special capacities available upon request)
- ❑ Available in panel-mounted or box-mounted configurations
- ❑ 250° pointer travel range

### RPM and SPM Generators

***Rugged and dependable generators measure and display RPM of any rotating object***

AOI RPM and SPM Tachometer Generators are available in explosion-proof and non-explosion-proof models. Each generator has an output of 10 VAC @ 1,000 RPM in either direction—clockwise or counterclockwise.



Non-explosion proof model (A78-145)



Explosion proof model (A75-1163)

#### Features

- ❑ 10 VAC @ 1,000 RPM output.
- ❑ Explosion-proof model is listed by Underwriter's Laboratories (UL) for use in hazardous locations, Division 1, Group D (natural gas or the vapors from lacquer solvents, acetone, alcohols, and petroleum derivatives such as gasoline) and Class 2, Groups F and G.
- ❑ Easily mounted, with a direct connection to the pump pinion shaft by means of a flexible coupling or by a V-belt connection between the shaft and the generator pulley.
- ❑ A heavy-duty, oil-resistant electrical cord connects the generator to the RPM meter.
- ❑ Generator supplies all the power necessary for one or more Indicators—no outside power or batteries are required.

## Signal Converter System

### ***Advanced sensor system for use with RPM an SPM pump speed indicators***

The AOI Signal Converter measures rotary table RPM and pump SPM without the use of a generator. Permanently mounted, oil-tight proximity switches perform SPM sensing. A magnetically activated probe mounted near the rotary table or next to an object that rotates in proportion to the table senses RPM.

The system includes an **Electronics Module, Cables, Mounting Hardware, and Sensors.**

A microprocessor-based control box outputs pulse and analog signals for use by pump speed indicators and other devices, including:

- ☐ RPM and SPM electric meters
- ☐ Drilling recorders
- ☐ Electronic circular recorders
- ☐ Digital pump stroke counters





### Pump Stroke Counter/Rate Meter

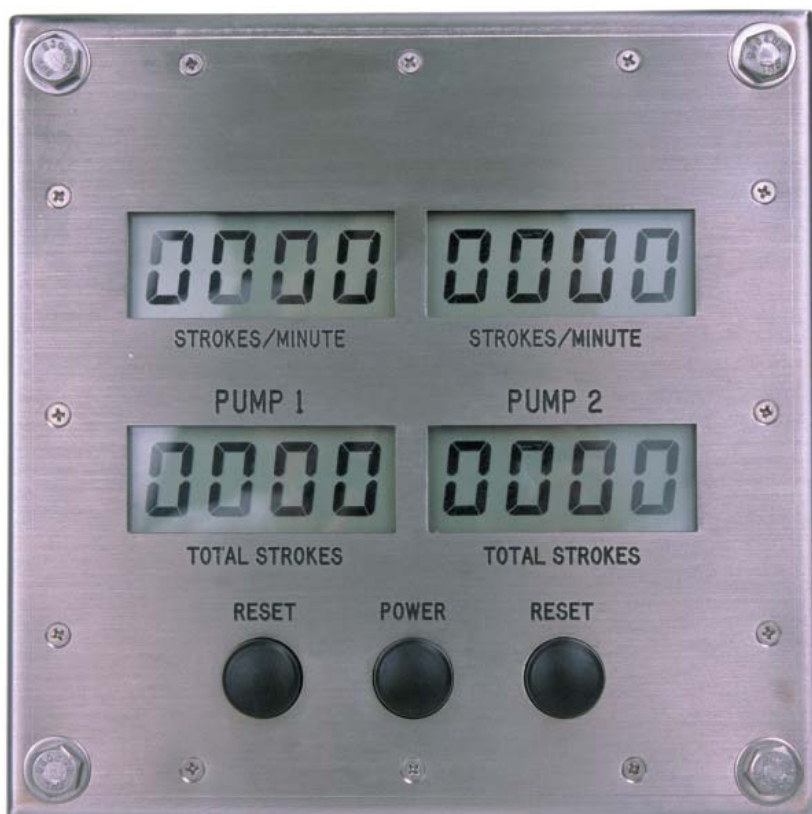
***Monitors and displays number of strokes and stroke rate for two mud pumps***

The AOI Pump Stroke Counter/Rate Meter displays both the total number of strokes and the strokes per minute for two mud pumps—up to 1,024 strokes per minute for each pump.

Push buttons conveniently located on the front of the instrument make it easy for the operator to reset each pump count. A stainless steel enclosure ensures reliable readings even in the toughest operating environments.

#### Features

- ❑ Displays total number of strokes— from 0 to 9,999
- ❑ Displays number of strokes per minute— from 7.5 to 1,024
- ❑ Low current consumption— approximately 100 uA in standby mode
- ❑ LCD display height: 0.7 inch
- ❑ Operates in temperatures from  $-4^{\circ}$  to  $140^{\circ}$  F ( $-20^{\circ}$  to  $60^{\circ}$  C)
- ❑ Size: 7-7/8 H x 7-7/8 W x 3-inch D
- ❑ Weight: 4 pounds
- ❑ Available model that meets Class 1, Division 1 standards
- ❑ Displays strokes for 2 mud pumps (Optional model available that displays strokes for 3 mud pumps)



- Battery powered — no external power required.
- Low voltage helps ensure rig safety.
- Stainless steel enclosure ensures accurate readings in harsh environments.
- Simple display and controls are easy to use.
- Low maintenance and a long life expectancy of 50,000 hours of continuous use maximizes your equipment investment.
- Requires no calibration — easy to set up and maintain.

## CCTV System

### ***Closed Circuit TV System delivers a clear view of derrick operations***

The AOI CCTV (Closed Circuit TV) System enables drillers to see derrick operations when obstructions block the view. The system includes a rugged top drive zoom **Camera** in an explosion-proof housing and a compact, flat-screen color **Monitor**.

Based on state-of-the-art CCD and DSP (Digital Signal Processing) technologies, the Camera provides industry-standard resolution and enhanced sensitivity for superior images even in very low light conditions.

#### Features

##### **Camera**

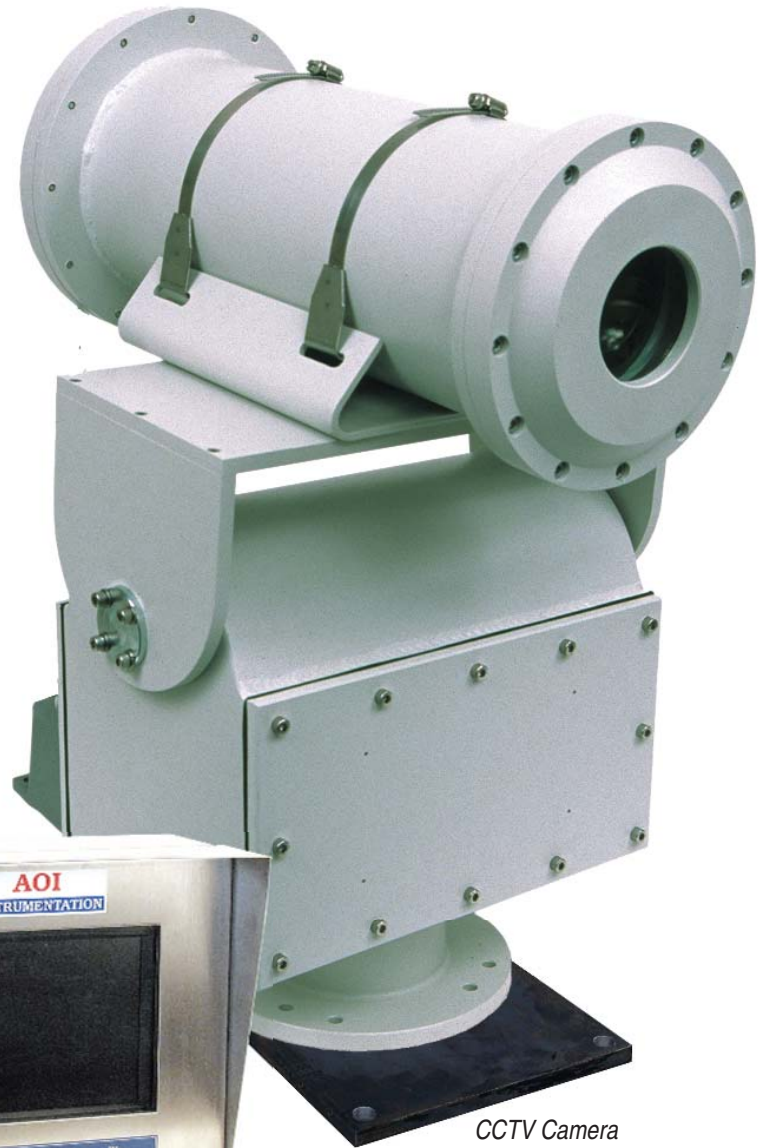
- ❑ Mounted in a UL-approved explosion-proof housing with O-ring seals
- ❑ Uses an industry-standard 1/3-inch videotape format and includes features such as:
  - High-resolution zoom lens
  - Backlight compensation
  - Automatic iris
  - Fixed or automatic white balance
  - Double insulation
  - Pan and tilt (optional)

##### **Monitor**

- ❑ Compact, high-resolution, flatscreen color monitor is mounted in a purgeable housing, and includes features such as:
  - Pan, tilt, and focus
  - Fast warm-up
  - 300 TV lines typical resolution
- ❑ 10.4-inch (26.41 cm) diagonal viewing area



*CCTV Monitor  
(Model 400H)*



*CCTV Camera  
(Model ACC 200E)*

- CCTV systems can be custom designed for viewing moon pool area, shakers area, or any other remote area of the rig.
- Explosion-proof, water-proof, and dust-proof camera and monitor housings provide reliable performance in hazardous locations – including marine environments.
- Plug-and-play capability streamlines installation and setup.
- Monitor controls located on the front of the monitor housing make operation easy and

### Crane Load and Radius Indicator System

**Clearly shows total weight of load, load radius, and safe lifting capacity—all on a single gauge**

The AOI Crane Load and Radius Indicator System is ideal for construction, dockside, and offshore drilling environments, as well as for material replenishment and salvage operations. Designed for use with gantry, pedestal, derrick, barge, and locomotive cranes, this durable system provides reliable, accurate measurements that help ensure safe lifting operations.

The system consists of a **Load and Radius Gauge**, a radius **Sensor**, a **Load Cell**, a hydraulic **Radius Hose**, and a **Radius Sensor Hose**.



Load and Radius Gauge



Crane Load Cell



Clevis



Radius Sensor

#### Features

- ❑ Large 8½-inch, easy-to-read dial
- ❑ Dial available in a wide range of capacities, up to 300,000 pounds
- ❑ For use with gantry (revolver and whirly), pedestal, derrick, barge, and locomotive cranes
- ❑ For construction, dockside, and offshore drilling environments—and for material replenishment and salvage operations
- ❑ Wide range of models. Dials for multipart line arrangements available.
- ❑ For dead-end applications, adaptable to portal, derrick, and pedestal cranes with suspended upper block. Systems can be coupled for multifall crane applications.
- ❑ Available with integral jaw x jaw clevis with safety pins

- Easy-to-read dial — eliminating time-consuming and difficult calculations.
- Dial can be mounted inside or outside cab — for easy viewing by crane operator.
- Accurate and complete readings help prevent dangerous and expensive crane accidents.



The AOI Crane Load and Radius Indicator System is available in three models:

- ❑ **Series ACR Crane Load and Radius Indicator System**  
Shows total load, radius-of-load, and rated load values at specified radiuses.
- ❑ **Series ACL Crane Load Indicator System**  
Shows total load in pounds, tons, kilograms, tons, or decanewtons.
- ❑ **Series AR Crane Radius Indicator System**  
Shows radius-of-load and rated loads at specified radiuses.

**To order Series ACR specify:**

- Crane make, model, and serial number
- Boom length (distance from centerline of boom foot pin to centerline of boom point hoist sheave pin)
- Number of parts line supporting hook block
- Wire rope size
- Capacity of crane at boom length and parts specified
- Distance from centerline of boom foot pin to centerline of rotation
- Radius and capacity data as shown on manufacturer's rating chart
- Gauge size (8-1/2-inch or 12-inch dial)

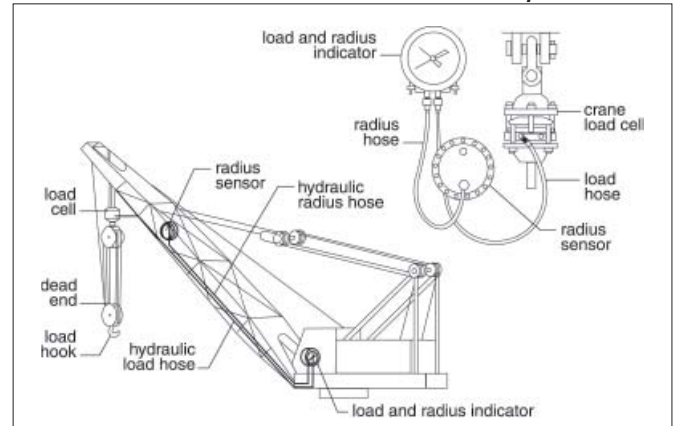
**To order Series ACL specify:**

- Crane make, model, and serial number
- Boom length (distance from centerline of boom foot pin to centerline of boom point hoist sheave pin)
- Number of parts line supporting hook block
- Wire rope size
- Capacity of crane at boom length and parts specified
- Gauge size (6-inch, 8-1/2-inch, or 12-inch dial)

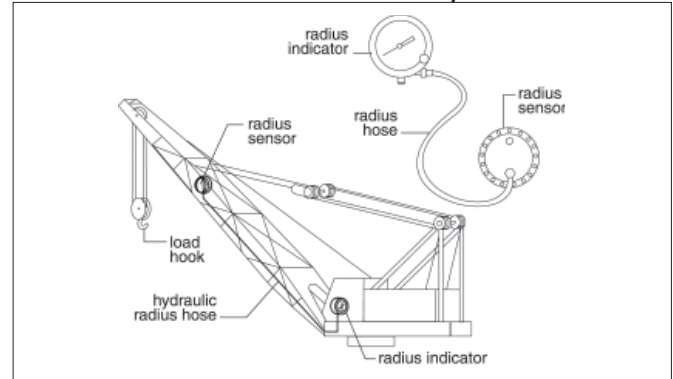
**To order Series AR specify:**

- Crane make, model, and serial number
- Boom length (distance from centerline of boom foot pin to centerline of boom point hoist sheave pin)
- Distance from centerline of boom foot pin to centerline of rotation
- Gauge size (6-inch or 8-1/2-inch dial)
- Radius and capacity data as shown on manufacturer's rating chart

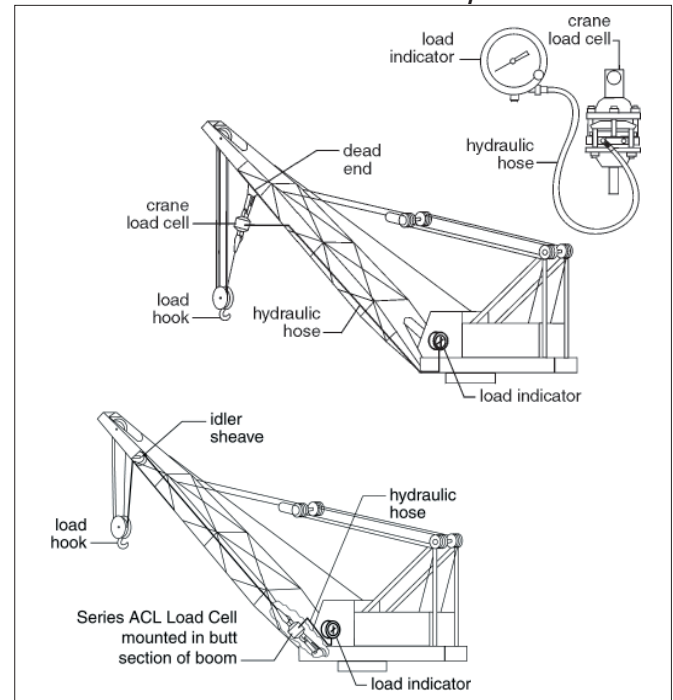
## Series ACR Crane Load and Radius Indicator System



## Series ACL Crane Load Indicator System



## Series AR Crane Radius Indicator System



## AOI Auto-Driller

***State-of-the-art driller  
automatically maintains  
optimum weight on bit***

The AOI Auto-Driller (equivalent to the Satellite® Automatic Driller) automatically maintains deadline tension, enabling a constant penetration rate for fast and efficient drilling. This durable driller reduces drilling costs, increases bit life, and helps ensure an accurate drilling path.



### Features

- ❑ Two-speed gear unit covers a wide range of penetration rates.
- ❑ Advanced air valve provides smooth response even in tough drilling environments.
- ❑ Hydraulically-activated control unit receives the weight signal directly from the rig's weight indicator or deadline anchor sensor, eliminating the need for extra equipment. (An optional weight sensor diaphragm is available for situations in which an existing weight indicator cannot be used.)
- ❑ AOI Auto-Driller components include:
  - Deadline tension sensor
  - Controller assembly
  - Air motor
  - Differential gear assembly
  - Drum rotation sensor

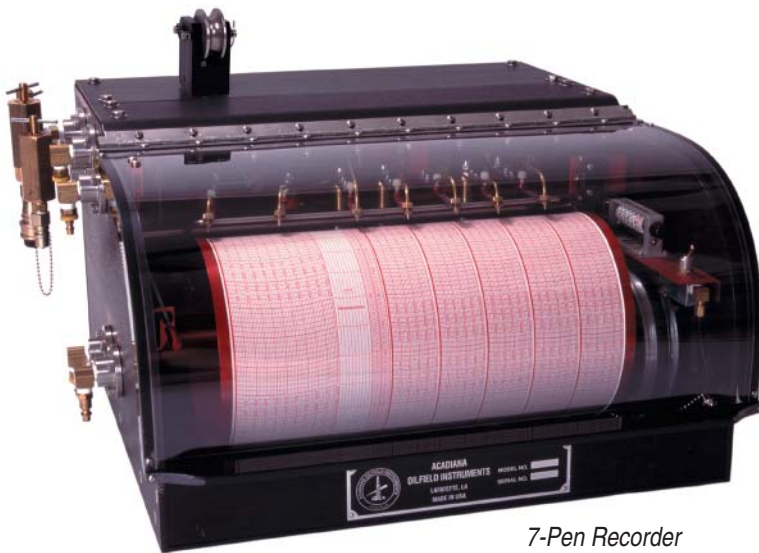
- Rugged design assures reliable results even in extreme environments.
- Easy to install.
- Uses rig air pressure — no external power source required.
- Speed control automatically adjusts to all drilling conditions and formations.
- Precision weight on bit control maintains constant penetration rate.

## Drilling Recorder

***Durable, reliable recorder  
delivers crucial drilling data***

An essential tool for all drilling operations, the AOI Drilling Recorder provides accurate, duplicate 12-hour or 24-hour charts that record measurements of virtually all crucial drilling functions, such as drill string weight, penetration rate, and other data.

- Engineered for durability
- Simple design makes maintenance easy
- Includes rugged chart storage container



7-Pen Recorder

### To order specify:

- Sensors required
- Functions to record
- Wire and hose lengths
- Number of pens (3, 5, or 7)
- 12- or 24-hour chart drive

### Features

- Duplicate 12-hour or 24-hour strip charts in English, metric, or SI metric measurements.
- Available in 3-, 5-, or 7-pen configurations.
- Recordings include:
  - **Weight**  
Detects downhole problems such as tight holes or cave-ins as they occur.
  - **Penetration**  
Indicates each 1-foot and 5-foot depth drilled (or each 1/3 meter and 1 meter).
  - **Rotary RPM**  
Enables optimum penetration.
  - **Torque**  
Alerts operator about problems such as worn bits, formation changes, and out-of-gauge holes.
  - **Pump rate SPM**  
Ensures accurate calculations of fluid volume pumped into the system. When used with other records, can help predict kick areas for offset wells.
  - **Pump pressure**  
Provides warning of potential downhole problems.
  - **Pit level**  
Indicates problems such as kicks or lost circulation.
  - **Fluid flow**  
Warns of lost circulation, formation fluid influx, or kicks.



### Drift Indicator System

***Accurate, dependable drift indicator system assures vertical holes***

For accurate measurement of deviation from vertical in wellbores, the AOI Drift Indicator System is the most reliable and easy-to-use drift indicator available. This essential tool enables the driller to maintain a controlled, absolutely vertical drill path.

System components include:

- **Double Recorder**—Measures and records hole inclination. Consists of an Angle Indicator and a Timing Device enclosed in a stainless steel case.
- **Go-Devil**—Protects the Double Recorder from shock, pressure, and fluid.
- **Various other tools and components**, such as rope sockets and Go-Devil sinker weights and stabilizers.
- **Tools for maintaining the Double Recorder.**

#### Features

- ❑ Instruments and charts available in 0-7°, 8°, 14°, and 16° values
- ❑ Go-Devil available in 1-5/16 and 1-5/8-inch outer diameter
- ❑ Variety of Go-Devil assemblies available for various methods of running the tool, including free-dropping, sand-lines, and core barrel adapters
- ❑ Standard unit operates in wellbores up to 350° F (93° C)
- ❑ Hot Well unit operates in wellbores up to 500° F (260° C)



- **Easy to operate**—any member of the crew can read measurement data.
- **Completely mechanical system**—requires no liquid or electrical equipment.
- **Reliable, accurate measurement**—helps prevent costly deviations from the vertical path.



### **Equipment Warranty Information**

Acadiana Oilfield Instruments, Inc. ("AOI") warrants that all parts manufactured or supplied by it shall be free from defects in material and workmanship of hydraulic, mechanical, and electronic equipment, under proper and normal use. AOI shall replace or repair, as it may elect, any part or parts covered by this warranty proven to the satisfaction of AOI to be defective in material or workmanship upon original delivery to the customer within 12 months from the date of shipment to the customer. However, only during the first 90 days will travel expense and labor be the responsibility of AOI should any warranty work be required. Thereafter for the remainder of the 12-month warranty period, the customer will be responsible for the AOI service technician. Should an AOI service technician be required to return for a warranty repair within 30 days of a previous warranty repair, AOI will be responsible for both travel and labor expenses if warranty is within the 12-month warranty period.

All warranty claims should be made to the nearest AOI office or service representative, who at their option, may arrange for an inspection of the equipment by an authorized company representative. All parts accepted by AOI under the provisions of this warranty shall be returned by the customer transportation charges prepaid, to the appropriate manufacturing facility for repair or replacement. Charges for shipping repaired or replacement parts from AOI to the customer's location shall be the responsibility of AOI.

AOI shall not be responsible for the repair or replacement of parts due to improper installation or damage caused by others. AOI shall not be liable for any other warranty, either expressed or implied, nor for any claims for labor or consequential damages. The warranty set forth shall run only in favor of AOI's original customer. AOI shall not be liable for the use of any AOI equipment whether such damage, injury or loss results from, or is caused by, manner of use, defect in material or workmanship, or otherwise.

### **Limited Product Warranty**

THE FOLLOWING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT BY WAY OF LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Acadiana Oilfield Instruments, Inc. ("AOI") warrants to Buyer ("Purchaser") of new products manufactured or supplied by the Company that such products are, at the time of delivery to the Purchaser, free of material and workmanship defects, subject to the following exceptions:

- A. Any product which has been repaired or altered in such a way, in AOI's judgement, as to affect the product adversely, including any repairs, rebuilding, welding or heat treating outside of AOI authorized facility.
- B. Any product which has, in AOI's judgement, been subject to negligence, accident, or improper storage.
- C. Any product which has not been installed, operated and maintained in accordance with normal practice and within the recommendations of AOI.
- D. For all items of special order by Buyer which are not manufactured by AOI, Buyer should submit warranty claims directly to the manufacturer thereof.

AOI's obligation under this warranty is limited to repairing, or at its option, replacing any products which in its judgement proved not to be as warranted within the applicable warranty period. All costs of transportation of products claimed not to be as warranted to authorized AOI service facility shall be borne by Buyer. Costs of return transportation to Buyer of products accepted for repair or replacement by AOI under the warranty provisions of the Sales Agreement shall be borne by AOI. AOI may, at its sole option, elect to refund the purchase price of the products, and AOI shall have no further obligation under the Sales Agreement.

The cost of labor for installing a repaired or replacement part shall be borne by Buyer. Replacement parts provided under the terms of this warranty are warranted for the remainder of the warranty period of the product upon which installed to the same extent as if such parts were original components thereof.

The warranty periods for various products are:

- A. Hydraulic, Mechanical, Electronic Equipment: one (1) year from date of shipment to Buyer.
- B. All Elastomer Diaphragms: six (6) months from date of shipment from AOI.

No deviations from AOI's standard warranty terms or period as stated herein will be honored unless agreed to in writing by an authorized AOI representative prior to acceptance of the order.

### **Exclusivity of Remedy and Limitation of Liability**

THE REMEDIES PROVIDED FOR IN THIS WARRANTY SHALL CONSTITUTE THE SOLE RECOURSE OF BUYER AGAINST AOI FOR BREACH OF ANY OF AOI'S OBLIGATIONS UNDER THE SALES AGREEMENT WITH BUYER, WHETHER THE CLAIM IS MADE IN TORT OR IN CONTRACT, INCLUDING CLAIMS BASED ON WARRANTY, NEGLIGENCE, OR OTHERWISE.

IN NO EVENT SHALL AOI BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, STRICT LIABILITY OR IN TORT (INCLUDING NEGLIGENCE), NOR FOR LOST PROFITS.

# AOI

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