



TOWNSEND

INTERNATIONAL BOP'S, INC.

5381 W. 42ND STREET □ P.O. BOX 14170
 ODESSA, TX 79768
 OFFICE 432/381-8750 □ FAX 432/381-6324

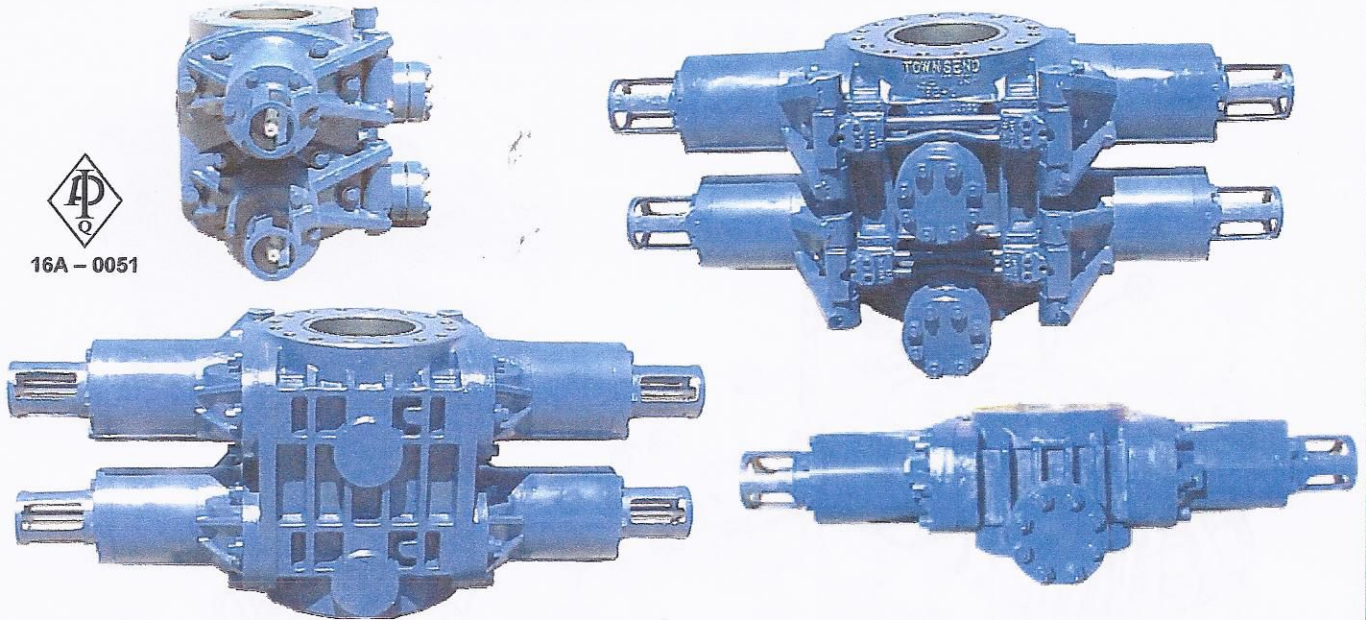
"The B.O.P. People"

TYPE 82 RAM TYPE BOP

DIMENSIONS & SPECIFICATION DATA



16A - 0051



DIMENSIONS					
SIZE	STYLE	7-1/16 X 5M	11 X 3M	11 X 5M	13-5/8 X 3M
OVERALL HEIGHT STUDDED (LESS STUDS)	SINGLE	15"	14-1/2"	17"	19-1/2"
	DOUBLE	26-3/4"	29-3/8"	33"	34-1/2"
	TRIPLE	37-1/2"	44-3/4"	49"	49-1/2"
OVERALL HEIGHT FLANGED	SINGLE	28-1/14"	27-1/8"	34-1/2"	30-5/8"
	DOUBLE	40"	42"	50-1/2"	48"
	TRIPLE	50-3/4"	56"	66-1/2"	67"
OVERALL LENGTH		58"	72-1/4"	89-1/4"	92-3/4"
OVERALL WIDTH		21-1/2"	25-7/8"	28-3/4"	30-7/8"
OPENING THROUGH		7-1/16"	11"	11"	13-5/8"
WORKING PRESSURE (LBS.)		5,000	3,000	5,000	3,000
TEST PRESSURE (LBS.)		10,000	6,000	10,000	6,000

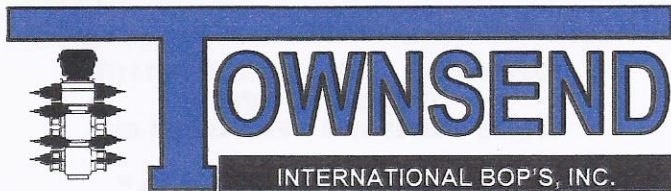
BOP CAPACITIES				
SIZE	7-1/16 X 5M	11 X 3M	11 X 5M	13-5/8 X 3M
MAXIMUM OPERATING PRESSURE	1,500	1,500	1,500	1,500
RECOMMENDED OPERATING	1,500	1,500	1,500	1,500
RATIO TO CLOSE	4.5:1	4.4:5	5.5:7	8:16
VOLUME OF FLUID TO OPEN	1.18	1.45	2.62	5.30
VOLUME OF FLUID TO CLOSE	1.45	1.74	2.98	4.35
PISTON STROKE	4-1/16"	6-1/18"	6-1/18"	7-1/4"

WEIGHTS					
SIZE		7-1/16 X 5M	11 X 3M	11 X 5M	13-5/8 X 3M
SINGLE	STUDDED	1,513	2,400	5,600	4,300
	FLANGED	1,713	2,700	6,600	5,000
DOUBLE	STUDDED	2,632	4,500	7,650	7,500
	FLANGED	2,966	4,800	8,600	8,200
TRIPLE	STUDDED	3,618	6,300	9,700	9,700
	FLANGED	3,818	6,600	10,600	11,500



TYPE 70 STYLE RAM BLOCKS & RUBBERS

For inquiries and a complete listing of Blowout Preventers and Accumulators, visit our website at <http://www.townsendbops.com>



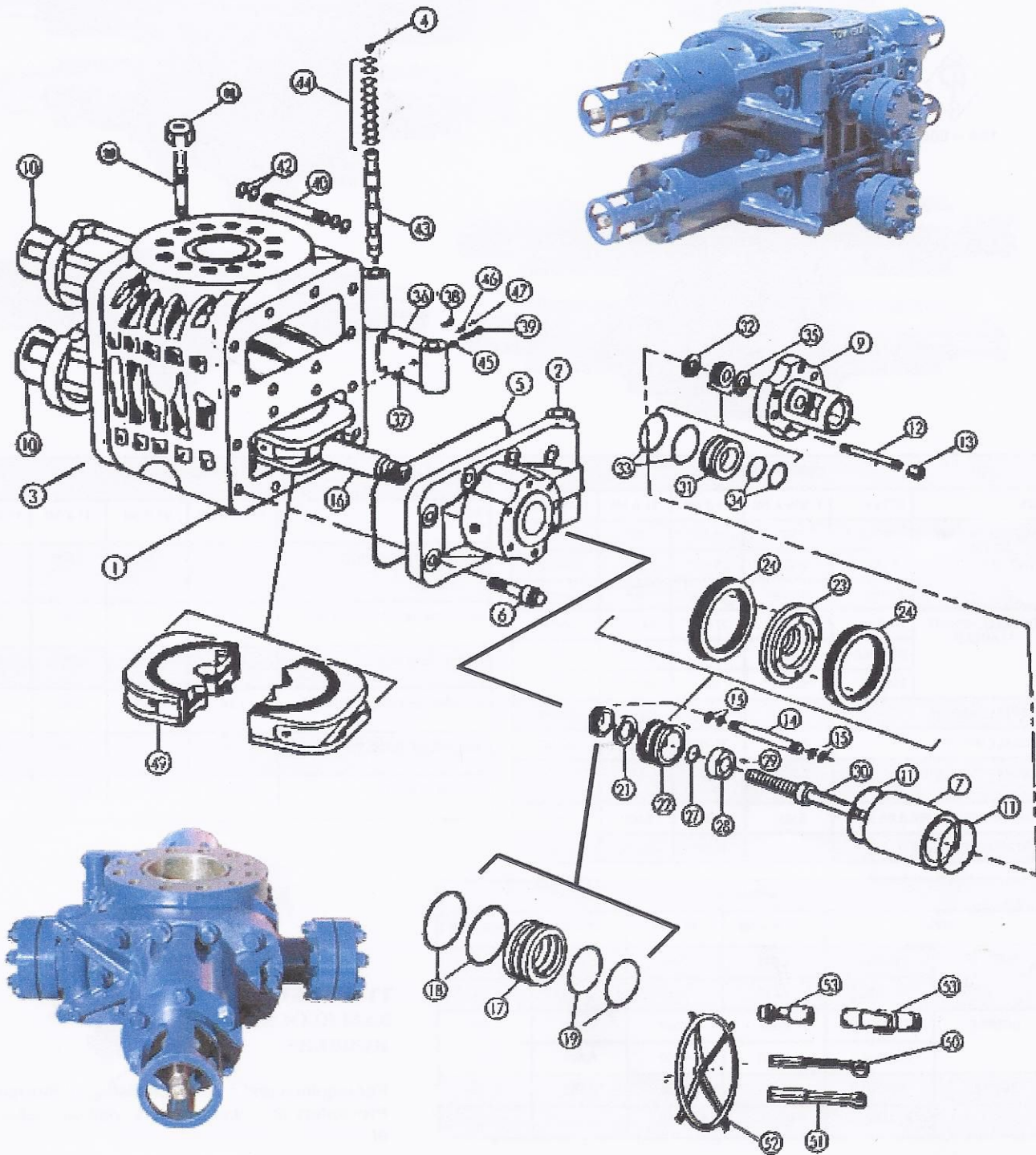
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TOWNSEND TYPE 82 RAM TYPE BOP

7-1/16 X 5M – 11 X 3M

11 X 5M – 13-5/8 X 3M





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INTRODUCTION

THE PURPOSE OF THIS MANUAL IS TO GIVE THE OPERATOR A BETTER UNDERSTANDING OF THE "TYPE 82" RAM TYPE BLOWOUT PREVENTER AND TO FAMILIARIZE THE OPERATOR WITH THE COMPONENT PARTS AND OPERATION OF THE PREVENTER. PROPER MAINTENANCE WILL HELP DETECT PERFORMANCE DEVIATIONS BEFORE PROBLEMS OCCUR DURING A WELL CONTROL SITUATION.

THE AMERICAN PETROLEUM INSTITUTE RECOMMENDS PRACTICES RP-53 ON BLOWOUT PREVENTION. A COPY OF THIS PROCEDURE CAN BE OBTAINED FROM THE AMERICAN PETROLEUM INSTITUTE. TOWNSEND'S "TYPE 82" BLOWOUT PREVENTERS ARE MANUFACTURED UNDER THE AMERICAN PETROLEUM INSTITUTE SPECIFICATION 16-A.

ADDITIONAL INFORMATION IS AVAILABLE IN THE FOLLOWING PUBLICATIONS:

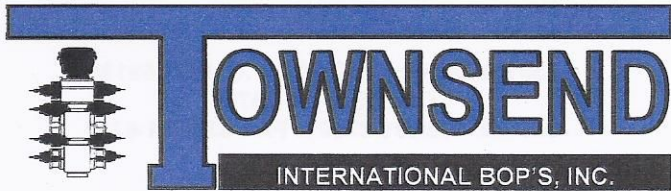
1. THE TOWNSEND GENERAL CATALOG
2. AMERICAN PETROLEUM INSTITUTE (PRACTICES RP-53) ON BLOWOUT PREVENTION
3. AMERICAN PETROLEUM INSTITUTE SPECIFICATION 16-A
4. NATIONAL ASSOCIATION OF CORRECTION ENGINEERS (STANDARD MR-01-75)

THE MOST ECONOMICAL SEQUENCE FOR TEST AND INSPECTION PROCEDURES SHOULD BE CONSISTENT WITH SAFE RIG OPERATIONS.

THE MAINTENANCE OF TOWNSEND'S "TYPE 82" BLOWOUT PREVENTER IS DESIGNED TO COINCIDE WITH A NORMAL RIG MOVE OR WHEN THE RIG IS BEING OVERHAULED.

TOWNSEND INTERNATIONAL BOPS "TYPE 82" RAM TYPE PREVENTER IS A HYDRAULIC OPERATED PREVENTER. THE "TYPE 82" PREVENTERS ARE AVAILABLE IN SINGLE, DOUBLE AND TRIPLE CONFIGURATIONS AND IS AVAILABLE IN 7-1/16" X 5M, 11" X 3M, 11" X 5M AND 13-5/8" X 3M PSI RATINGS.

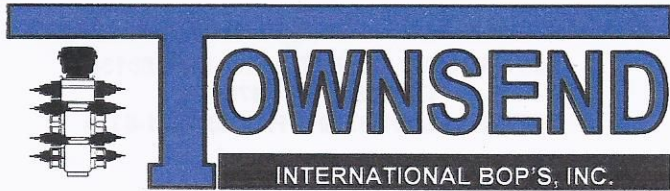
THE BEST PREVENTATIVE IS A GOOD MAINTENANCE PROGRAM.



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PRE-INSTALLATION INSPECTION

1. PRIOR TO INSTALLATION, CLEAN AND LUBRICATE ALL PARTS AND SEALS. ALL BOPS SHOULD BE CLEANED AND TESTED BEFORE BEING PLACED INTO OPERATION OR MOVED TO ANOTHER JOB. PROLONGED INTERVALS OF NON-OPERATION AND NO LUBRICATION WILL CAUSE SEALS TO FREEZE UP AND POSSIBLY BREAK OR LOCK UP THE PREVENTER.
2. VISUALLY INSPECT THE BORE OF THE PREVENTER TO CONFIRM THAT RAM BLOCKS ARE IN THE OPEN POSITION.
3. INSPECT FOR DAMAGE TO THE TOP AND BOTTOM RING GROOVE ON THE PREVENTER. CLEAN RING GROOVES PRIOR TO PLACING RING GASKET IN GROOVE WITH EMERY CLOTH AND LIGHTLY OIL. ALWAYS REPLACE RING GASKETS WHEN PREVENTER IS REMOVED OR PLACED ON WELLHEAD OR A JOINTING FLANGE.
4. INSPECT THE RAM BLOCKS AND INTERNAL CAVITY FOR PHYSICAL DAMAGE.
5. INSPECT THE RAM RUBBERS FOR CRACKS, DAMAGE OR MISSING CHUNKS OF RUBBER DUE TO EXCESSIVE USE. (IF RAM RUBBERS ARE DAMAGED OR WEATHER CRACKED, REPLACE THEM BEFORE OPERATING THE BLOWOUT PREVENTER.)
6. INSPECT THE STUDS AND NUTS TO CONFIRM THREADS ARE NOT DAMAGED. REPLACE ANY STUD THAT IS SHORTER THAN REQUIRED OR THAT HAS THREAD DAMAGE. CONFIRM THAT ALL STUDS ARE TIGHT WHEN THE PREVENTER IS PLACED OVER THE HOLE.
7. INSPECT ALL DOOR BOLTS TO CONFIRM THEY ARE ALSO TIGHT AND HAVE NOT BEEN DAMAGED OR ARE MISSING. REPLACE ANY MISSING DOOR BOLTS.



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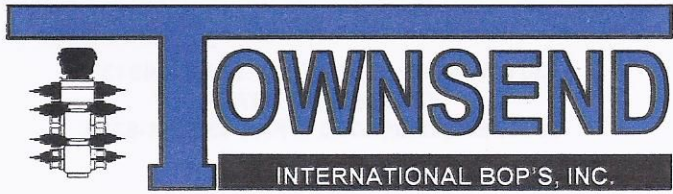
INSTALLATION OF PREVENTER

1. BEFORE INSTALLING THE "TYPE 82" PREVENTER OVER THE HOLE, BE SURE THE PREVENTER IS PLACE OVER THE HOLE CORRECTLY AND NOT UPSIDE DOWN.
2. A QUICK INSPECTION OF THE WELL BORE AND RAM CAVITY SHOULD SHOW THE SKID PADS IN THE RAM BORE CAVITY BELOW THE RAM BLOCKS. THE RAM BLOCK SEAL IS LOCATED ON TOP OF THE RAM BLOCK.
3. JUST BEFORE PLACING THE PREVENTER OVER THE WELL BORE, PLACE A NEW RING GASKET IN THE FLANGE BETWEEN THE WELL BORE CASING FLANGE AND THE PREVENTER FLANGE. INSPECT RING GASKET GROOVES IN BOTH FLANGES TO CONFIRM THEY ARE NOT DAMAGED AND FREE FROM TRASH AND RUST. CLEAN THE RING GROOVES WITH EMERY CLOTH IF NECESSARY.
4. PLACE THE PREVENTER OVER FLANGE WITH THE OUTLETS OR OPERATING CYLINDERS POINTING THE DIRECTION DESIRED.
5. TIGHTEN ALL BOLTS AND NUTS ACCORDINGLY. ONCE ALL NUTS ARE PLACED ON BOLTS AND HAND TIGHTEN, BEGIN TIGHTENING NUTS WITH A WRENCH OR IMPACT. TIGHTEN ONE NUT FIRMLY AND THEN CROSS OVER 180 DEGREES TO THE OTHER SIDE OF THE FLANGE TO TIGHTEN THE OPPOSITE NUT. ONCE THIS NUT IS TIGHTENED, CROSS OVER 90 DEGREES AND BEGIN TIGHTENING THE NEXT NUT, THEN CROSS OVER 180 DEGREES FROM THAT NUT TO THE OPPOSITE SIDE TO TIGHTEN THAT NUT. (GOOD EXAMPLE IS NORTH, SOUTH AND EAST WEST.) ONCE THE FOUR CORNER NUTS HAVE BEEN TIGHTENED, TIGHTEN ALL REMAINING NUTS GOING CLOCKWISE. RE-CHECK EACH NUT AS YOU GO CLOCKWISE AROUND THE FLANGE.

EACH NUT SHOULD HAVE THE FOLLOWING TORQUE POUNDS OF FOOT PRESSURE.

7-1/16 X 3M FLANGE CONNECTION	-	1-1/18" BOLT	-	704 POUNDS OF TORQUE
7-1/16 X 5M FLANGE CONNECTION	-	1-3/8" BOLT	-	1,321 POUNDS OF TORQUE
9" X 3M FLANGE CONNECTION	-	1-3/8" BOLT	-	1,321 POUNDS OF TORQUE
9" X 5M FLANGE CONNECTION	-	1-5/8" BOLT	-	2,221 POUNDS OF TORQUE

6. INSTALL THE HAND WHEELS AND U-JOINTS. THE OPERATOR MAY CHOSE TO LENGTHEN OR SHORTEN THE DISTANCE OF EXTENSIONS FOR THE HAND WHEELS BEFORE PLACING U-JOINTS ON EXTENSION. NORMAL EXTENSION MATERIAL IS 2-3/8" DIAMETER TUBING.



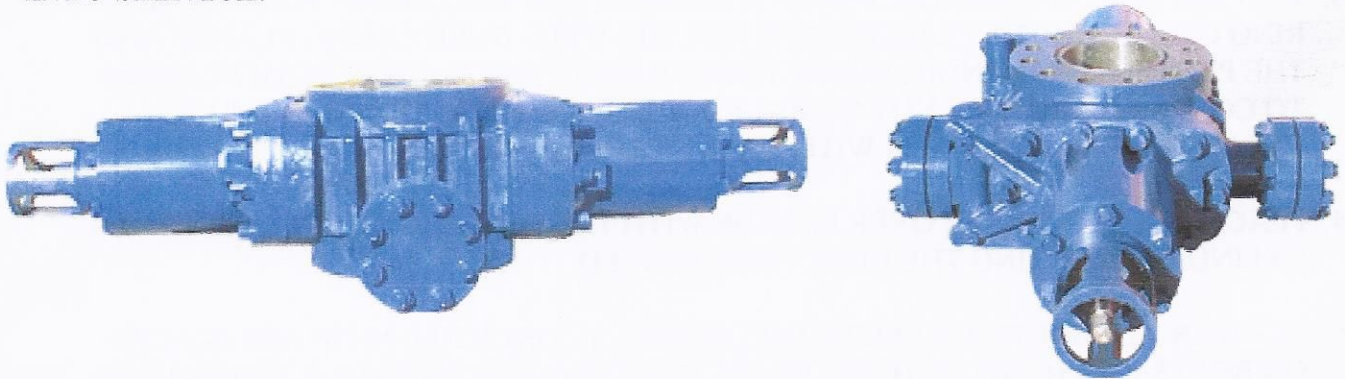
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INSTALLATION OF PREVENTER - (CONTINUED)

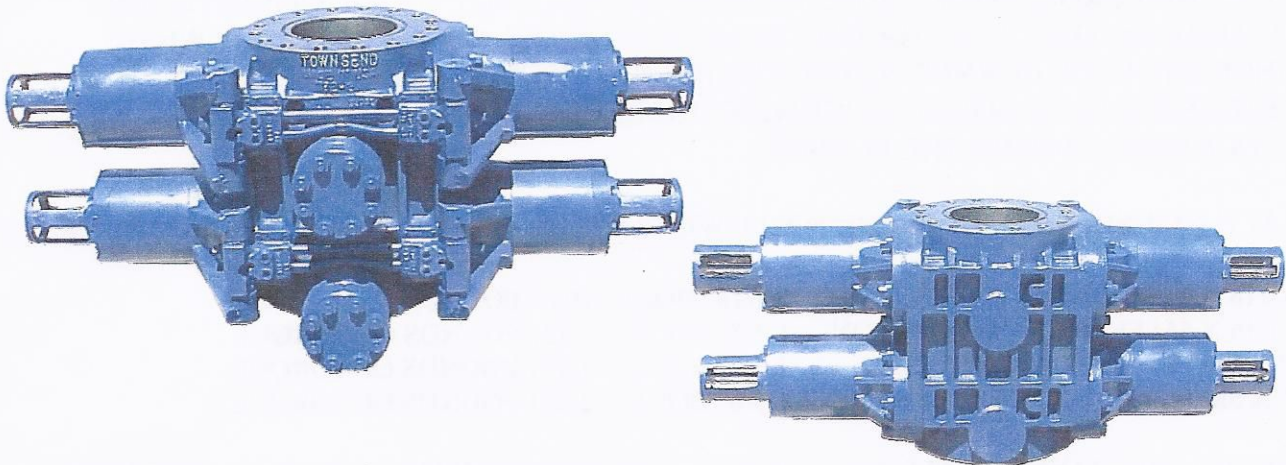
THE HAND WHEEL MAY BE WELDED OR PINNED TO THE EXTENSION. A CONNECTION ADAPTER HAS TO BE WELDED TO THE EXTENSION FOR BOTH THE HAND WHEEL AND THE U-JOINT.

7. CONNECT THE HYDRAULIC HOSES TO THE PROPER HYDRAULIC OUTLET.

PERFORM A WELL BORE PRESSURE TEST BEFORE PLACING THE PREVENTER INTO SERVICE.



TOWNSEND TYPE 82 SINGLE HYDRAULIC PREVENTER



TOWNSEND TYPE 82 DOUBLE HYDRAULIC PREVENTER



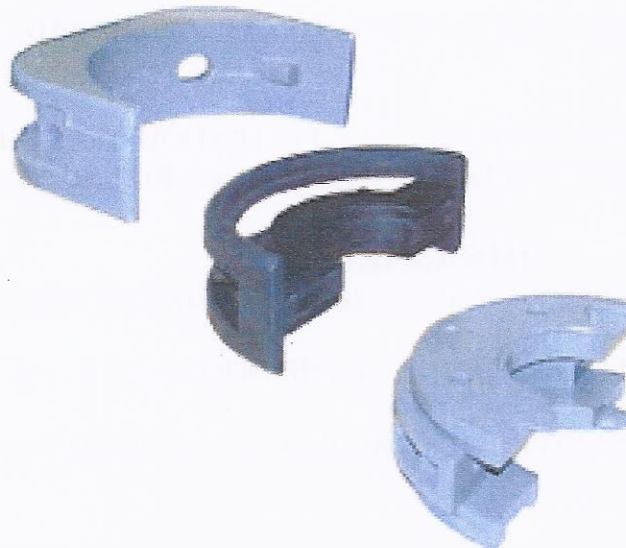
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OPERATION OF PREVENTER

1. TO CLOSE THE RAMS IN THE HYDRAULIC BLOWOUT PREVENTER MOVE THE SELECTOR SWITCH ON THE CLOSING UNIT TO THE CLOSE POSITION.
2. TO OPEN THE RAMS ON THE HYDRAULIC PREVENTERS MOVE THE SELECTOR SWITCH ON THE CLOSING UNIT TO THE OPEN POSITION.
3. CONFIRM THAT THE RAMS ARE FULLY RETRACTED.

CAUTION

IF RAMS DO NOT FULLY RETRACT FROM THE WELL BORE, RAMS CAN BE DAMAGED OR THE INTERIOR BORE OF THE PREVENTER CAN BE DAMAGED WHEN THE PARTIALLY EXPOSED RAM PUSHES THE PIPE FROM CENTER OF THE WELL BORE.



TOWNSEND TYPE 70 RAM BLOCK



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MAINTENANCE

THE TOWNSEND "TYPE 82" RAM TYPE BLOWOUT PREVENTER REQUIRES A MINIMUM AMOUNT OF MAINTENANCE. HOWEVER; IT IS IMPORTANT TO PERFORM MAINTENANCE ON ALL BLOWOUT PREVENTERS TO PREVENT UNFORESEEN DEVIATIONS IN A WELL CONTROL SITUATION.

TYPE 82 HYDRAULIC BOP PRE-SERVICE DISASSEMBLY & ASSEMBLY

TOWNSEND SUGGEST THAT THE OPERATOR SHOULD CLEAN AND LUBRICATE ALL PARTS AND SEALS WHEN ASSEMBLING OR REPLACING PARTS. IT IS MORE ECONOMICAL TO CHANGE ALL SEALS AND O-RINGS WHEN REPAIRING THE PREVENTER. (IF A PARTICULAR SEAL IS WEAK, THE OTHERS MOST LIKELY NEED TO BE REPLACED ALSO.)

1. ALL O-RINGS AND SEALS SHOULD BE LUBRICATED WITH SILICONE LUBRICANT OR MINERAL BASE LIGHT OIL.
2. SEED OIL OR GREASE SHOULD BE USED FOR RAM BLOCK LUBRICATION.
3. ALL THREADS SHOULD BE LUBRICATED WITH API-5A2 THREAD LUBRICANT PRIOR TO RE-ASSEMBLY.
4. ONCE THE PREVENTER HAS BEEN ASSEMBLED, IT SHOULD BE SHOP TESTED TO CONFIRM ALL COMPONENT PARTS ARE OPERATING PROPERLY.

DISASSEMBLY

(REFER TO EXPLODED VIEW OF MECHANICAL BLOWOUT PREVENTER)

1. REMOVE THE DOOR BOLTS FROM ONE OF THE DOORS (ITEM 6 & 7)
2. OPEN THE DOOR AND REMOVE THE RAM BLOCKS AND RAM CARRIERS FROM THE RAM SHAFT. (ITEM 49 & 16)
3. ONCE THE RAM BLOCKS HAVE BEEN REMOVED, ATTACH A HOIST TO THE DOOR TO HOLD IT IN POSITION (DO NOT APPLY PRESSURE TO THE DOOR) (ITEM 2)
4. REMOVE THE PIPE PLUG FROM THE HINGE BRACKET SO THE HINGE PIN CAN BE



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MAINTENANCE DISASSEMBLY CONTINUED

REMOVED. BEFORE THE HINGE PIN CAN BE REMOVED, THE HINGE PIN RETAINER MUST BE REMOVED FROM THE HINGE BRACKET. (ITEM 4, 36, 43 & 45).

5. AFTER REMOVING THE HINGE PIN, THE DOOR CAN BE REMOVED FROM THE BODY OF THE PREVENTER WITH THE USE OF THE HOIST. (ITEM 2, 3 & 43)
6. IF THE HINGE BRACKET IS DAMAGED, IT CAN BE REMOVED BY REMOVING THE HINGE BRACKET SCREWS. (ITEM 36 & 38)
7. THE CYLINDER HEAD CAN BE REMOVED FROM THE DOOR BY REMOVING THE CYLINDER HEAD STUDS. (ITEM NO. 2, 7, 9, 12, & 13)
8. ONCE THE CYLINDER HEAD HAS BEEN REMOVED FROM THE CYLINDER, THE CYLINDER CAN BE REMOVED FROM THE DOOR. REPLACE THE O-RINGS ON THE MANIFOLD AND CYLINDER. (INSPECT MANIFOLD TUBE FOR DAMAGE, IF DAMAGED REPLACE. (ITEM NO. 2, 7, 9, 14 & 15)
9. THE THRUST BUSHING CAN BE REMOVED FROM THE CYLINDER HEAD TO REPLACE ALL NECESSARY O-RINGS. (ITEM 9, 31, 34 & 33)
10. THE LOCKING SCREW CAN BE REMOVED FROM THE RAM SHAFT BY TURNING IT COUNTER CLOCKWISE. INSPECT LOCKING SCREW THREADS, CHROMED AREA AND INSPECT TO SEE IF SCREW IS BENT. (IF SCREW IS DAMAGED OR BENT, REPLACE. (ITEM 16 & 30)
11. REMOVE THE PISTON LOCK NUT FROM THE RAM SHAFT. (ITEM 16 & 28)
12. ONCE THE PISTON LOCK NUT HAS BEEN REMOVED, THE PISTON CAN BE PULLED FROM THE RAM SHAFT. (ITEM NO. 9 & 22)
13. THE PISTON RUBBERS CAN BE REMOVED FROM THE PISTON BODY. REPLACE THE PISTON RUBBERS AND THE LOCKING SHAFT SEAL. (ITEM NO. 23, 24 & 27)
14. REMOVE THE SCRAPER RING FROM THE RAM SHAFT AND THEN REMOVE THE RAM SHAFT PACKING ADAPTER. REPLACE THE SCRAPER RING. (ITEM NO. 17, 21 & 22)
15. REPLACE ALL THE O-RINGS IN AND ON THE PACKING ADAPTER. (ITEM 17, 18 & 19)



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MAINTENANCE DISASSEMBLY

16. THE RAM SHAFT CAN BE REMOVED FROM THE BOP DOOR NOW. INSPECT THE RAM SHAFT FOR SCRATCHES IN THE CHROMED AREA, DAMAGE TO THE THREADS AND TO SEE IF THE RAM SHAFT IS BENT OR DAMAGED. INSPECT NEAR THE FOOT OF THE RAM SHAFT FOR CRACKS AND DAMAGE TO THE FOOT ITSELF. IF THE SHAFT IS DAMAGED, REPLACE IT. (ITEM NO. 16)

ASSEMBLY

1. REPLACE THE DOOR ON THE BODY BY INSERTING THE HINGE PIN THROUGH THE DOOR AND THE HINGE PIN BLOCK. BE SURE TO REPLACE ALL THE HINGE PIN O-RINGS BEFORE INSERTING HINGE PIN. TAP PIN INTO BLOCK GENTLY TO ALIGN DOOR WITH HINGE BLOCK. (ITEM 36, 43, 1 & 2)
2. INSERT THE RAM SHAFT INTO THE DOOR. DO NOT PLACE RAM BLOCKS ON TO RAM SHAFT YET, SINCE IT WILL CREATE UNDO STRESS ON THE SHAFT. (ITEM NO. 16 & 2)
3. RETURN THE RAM SHAFT PACKING ADAPTER TO THE RAM SHAFT AFTER REPLACING THE INNER AND OUTER O-RING SEALS. (ITEM NO. 16, 17, 18 & 19)
4. PLACE THE PISTON ASSEMBLY ONTO THE RAM SHAFT AFTER REPLACING THE SCRAPER RING AND THE PISTON RUBBERS. (ITEM NO. 21, 23, 24 & 16)
5. REPLACE THE LOCKING SHAFT SEAL THEN SCREW THE PISTON LOCK NUT ONTO THE RAM SHAFT. (ITEM 27, 28 & 16)
6. SCREW THE LOCKING SCREW INTO THE RAM SHAFT. (ITEM NO. 16 & 30)
7. SLIDE THE THRUST BUSHING, THRUST BUSHING RETAINER AND SCRAPER RING INTO THE CYLINDER HEAD HOUSING. (ITEM NO. 31, 32, 33, 34, 35 & 9)
8. INSERT THE TWO CYLINDER HEAD SEALS ONTO THE CYLINDER HEAD. (ITEM NO. 7 & 11)
9. RETURN THE CYLINDER HEAD TO THE DOOR BY SLIDING IT OVER THE PISTON AND RAM SHAFT ASSEMBLY. (ITEM 2, 7 & 16)
10. PLACE THE CYLINDER HEAD OVER THE CYLINDER AND TIGHTEN THE CYLINDER HEAD STUDS. (ITEM NO. 2, 7 & 9)
11. ONCE THE BONNET HAS BEEN COMPLETELY ASSEMBLED, PLACE THE RAM BLOCKS AND CARRIERS BACK ON THE RAM SHAFT. (ITEM NO. 16 & 49)



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MAINTENANCE ASSEMBLY

12. BEFORE CLOSING THE DOOR ON THE PREVENTER, REPLACE THE DOOR SEAL GASKET. (ITEM NO. 2 & 5)
13. CLOSE THE DOOR AND HAND TIGHTEN THE DOOR BOLTS. THEN TIGHTEN EACH BOLT SNUGLY IN ROTATION. (ITEM 1, 2 & 6)
14. FOLLOW THE SAME PROCEDURE FOR EACH DOOR.

PERFORM A WELL BORE PRESSURE TEST BEFORE PLACING PREVENTER BACK INTO OPERATION.



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MAINTENANCE DAILY INSPECTION

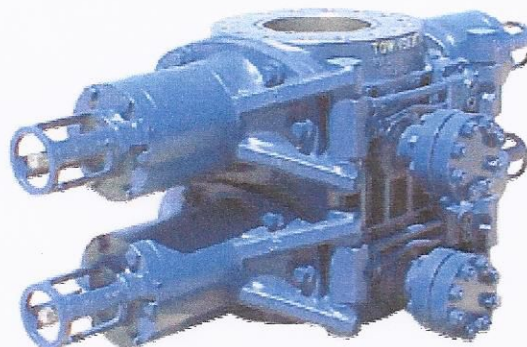
1. TOWNSEND SUGGEST THAT A DAILY INSPECTION OF THE TYPE 82 PREVENTER BE PERFORMED TO DETECT OBVIOUS PROBLEMS.
2. ALL PIPE RAMS AND BLIND RAMS SHOULD BE CLOSED AND OPENED WHEN THE PIPE IS OUT OF THE HOLE TO VERIFY THAT RAMS ARE OPERATING PROPERLY AND FREELY. RAMS SHOULD BE WELL GREASED TO ALLOW RAMS TO SLIDE EASILY OVER THE SKID PADS ON THE BOTTOM OF THE RAM CAVITY.
3. VISUALLY INSPECT THE EXTERIOR OF THE PREVENTER TO CONFIRM THERE ARE NO HYDRAULIC LEAKS OR DAMAGED COMPONENT PARTS. THIS INSPECTION SHOULD BE PERFORMED WHILE APPLYING CLOSING HYDRAULIC PRESSURE AND AGAIN WHEN THE HYDRAULIC PRESSURE IS OPENED. INSPECT FOR SEALS LEAKING ON CLOSING OR OPENING PRESSURE.

SPECIAL NOTES:

ALL BOPS SHOULD BE TESTED BEFORE EVERY JOB

ALL BOPS SHOULD BE TESTED AFTER THE DOORS HAVE BEEN REMOVED.

DO NOT FRAC THROUGH ANY BOP UNDER ANY CIRCUMSTANCES.

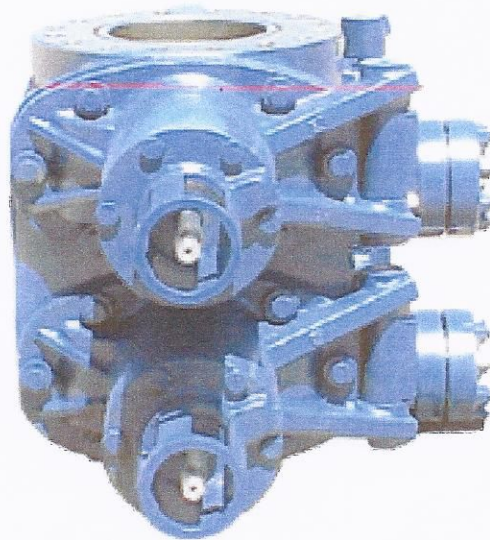




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MAINTENANCE WEEKLY INSPECTION

1. VISUALLY INSPECT THE EXTERIOR OF THE BLOWOUT PREVENTER TO CONFIRM THERE ARE NO HYDRAULIC LEAKS OR DAMAGED COMPONENT PARTS. THIS INSPECTION SHOULD BE PERFORMED WHILE APPLYING CLOSING HYDRAULIC PRESSURE AND AGAIN WHEN THE HYDRAULIC PRESSURE IS OPEN. INSPECT FOR SEALS LEAKING ON CLOSING AND OPENING PRESSURE.
2. PERFORM A "FIELD WELL BORE PRESSURE TEST". REFER TO FIELD WELL BORE PRESSURE TEST PROCEDURES, NEAR THE END OF THIS MANUAL.
3. ALL PIPE RAMS AND BLIND RAMS SHOULD BE CLOSED AND OPENED WHEN THE PIPE IS OUT OF THE HOLE TO VERIFY THAT THE RAMS ARE OPERATING PROPERLY AND FREELY. RAMS SHOULD BE GREASED TO ALLOW RAMS TO SLIDE EASILY OVER THE SKID PADS ON THE BOTTOM OF THE RAM CAVITY.
4. INSPECT THE RAM PACKERS FOR EXCESSIVE WEAR AND CRACKS. IF RAM PACKERS ARE DAMAGED OR CRACKED, REPLACE THEM.



SIDE VIEW OF TYPE 82 HYDRAULIC BLOWOUT PREVENTER



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MAINTENANCE MONTHLY INSPECTION

1. PERFORM A "FIELD WELL BORE PRESSURE TEST". REFER TO "FIELD WELL BORE PRESSURE TEST PROCEDURES" NEAR THE END OF THIS MANUAL.
2. VISUALLY INSPECT THE EXTERIOR OF THE PREVENTER TO CONFIRM THERE ARE NO HYDRAULIC LEAKS OR DAMAGED COMPONENT PARTS. THIS INSPECTION SHOULD BE PERFORMED WHILE APPLYING CLOSING HYDRAULIC PRESSURE AND AGAIN WHEN THE HYDRAULIC PRESSURE IS OPENED. INSPECT FOR SEALS LEAKING ON CLOSING OR OPENING PRESSURE.
3. INSPECT THE RAM RUBBERS FOR EXCESSIVE WEAR OR CRACKS. IF RAM RUBBERS ARE DAMAGED OR CRACKED, REPLACE THEM. RAM RUBBERS WEAR AT DIFFERENT RATES, DEPENDING ON USE. (DO NOT ASSUME THAT RAM RUBBERS ARE IN GOOD CONDITION BASED ON INSTALLATION DATE.)
4. CHECK ALL CONNECTIONS AND BOLT TORQUE.
5. INSPECT BONNET SEALS AND MACHINED SURFACES FOR DAMAGE.
6. TEST THE LOCKING SYSTEM.