



**OIL WELL TOOLS**  
*A Division of DAWSON ENTERPRISES*

2853 CHERRY AVE. • P.O. BOX 6039 • LONG BEACH, CA 90806-0039 • PH: (310) 424-8564 • TELEX: 65-6349 • FAX: (310) 595-6174

***CAVINS "ADVANCE" SPIDER***

***MODEL "G"***

***FOR HEAVY DRILLING OPERATIONS***



#### GENERAL INFORMATION:

The "Advance" Spider developed by the CAVINS CO. is considered to be the pioneer in power slips. Through years of experience and testing, many improvements have been made, which make the "Advance" Spider the leader in safe, economical, and troublefree handling of tubular goods. Heat-treated alloy steel is used throughout for the greatest possible strength and longest wearing life with a minimum of weight. The shafts are hardened alloy steel for longer life. Replaceable hardened steel bushings are fitted into the journal bearings. All bearings and journals are equipped with grease fittings for lubrication. Air cylinders and foot valves are mist lubricated through the air stream. All CAVINS "Advance" Spiders are equipped with a manually operated safety latch, which may be used to positively lock the slips in their set position. Because of the low operating pressure, the slips cannot release from the tubing until it has been raised by the elevators, thus guarding against a lost string in the event that the foot valve is tripped accidentally. The slips, shafts, and air operating mechanism are protected by guards to prevent damage caused by the elevators or other outside forces. Through research and field testing, our engineers are constantly on the lookout for additional improvements which will assure the man in the field of receiving the safest and most maintenance free equipment available.

#### A. APPLICATION:

The CAVINS "Advance" Spider is available in three models. The Model "B" Spider is designed for use with all A.P.I. Tubing sizes from 1.315" O.D. through 3-1/2" O.D. The Model "C" Spider is designed for use with all A.P.I. tubing and drill pipe sizes from 1.315" O.D. through 5-1/2" O.D. The Model "F" Spider is designed for use with all A.P.I. tubing, casing, and drill pipe sizes from 2-3/8" O.D. through 8-5/8" O.D. All CAVINS "Advance" Spiders may be used on a rotary table with an adapter plate, which fits into the master bushing drive square, thus centering the Spider on the rotary table. This also enables the manually operated Spider to be rotated.

The Model "B" and Model "C" Spider may be equipped with a gate and slips which are relieved to pass parallel strings of tubing. If the Spider is to be used with both single and parallel strings to any extent, we recommend that both kinds of slips and gates be ordered.

#### B. COMPRESSED AIR OPERATED SPIDER

All Models of CAVINS "Advance" Spiders are available for compressed air operation. The low operating pressure (40-65 P.S.I.) required by this type Spider makes it easily adaptable to air supply on any rig, or portable compressor if the rig is not so equipped.

Each compressed air operated Spider requires the following items:

1. One Spider body complete, for air operation.
2. One Slip assembly complete for each size tubing, casing, or drill pipe to be run. The Slip assembly Model Corresponding to the body assembly ordered.
3. One Air Filter Pressure Regulator with Gauge and Lubricator.
4. One Foot operated Air Control Valve assembly with Cover Guard.
5. Three lengths of Air Hose assemblies. One hose to connect the outlet of the lubricator to the inlet of the foot or hand valve, two to connect the valve with the air cylinder of the Spider.

**C. HYDRAULIC OPERATED SPIDER:**

All CAVINS "Advance" Spiders can be supplied or converted in our factory for hydraulic operation. When ordering a hydraulic conversion or unit, supply all details concerning the hydraulic system available, especially the system pressure. With the proper information, the Spider will be set up and fully adjusted for your individual system before leaving our factory. Each hydraulically operated Spider requires the following items:

1. One Spider body assembly complete, for hydraulic operation.
2. One slip assembly complete for each size tubing, casing, or drill pipe to be run. The slip assembly model corresponding to the body assembly model ordered.
3. One foot operated valve and pressure reducer assembly for hydraulic operation.
4. Four lengths of hydraulic hose (low pressure 250 P.S.I. working pressure):

Each length of hose has a female quick change coupling attached to each end. One length leads from the Pressure Reducer to the Foot Valve. Two lengths connect the Foot Valve with the Hydraulic Cylinder of the Spider. One hose connects the exhaust on the Foot Valve with the supply tank, acting as return line.

**D. SLIPS:**

A slip assembly is made up of four individual segments, which are machined together as a unit to form a matched set. Each matched set must fit into a master gauge which is identical to the bowl in a Spider body, thereby assuring that all slip assemblies will fit in all Spiders of the same model. However, slip segments from one set of slips will not interchange with slip segments from another set of slips because they would not be matched sets. It is very important, that these sets are kept intact to insure proper gripping action. It is also important that adjacent segments within an assembly which are tied together with arm bolts and tie bolts always be assembled together when replacing arm bolts and tie bolts.

If a slip segment becomes lost or damaged, the remaining segments should be returned to the factory and a new segment machined to fit the remaining ones. A segment from one set of slips should never be substituted for a missing segment in another set of slips.

The wickers in the CAVINS "Advance" integral tooth slips type FC (Full Circle) will eventually become worn to the point where they do not hold tubing efficiently. When this occurs, the worn slips should be returned to the factory on a repair basis for rebuilding and converting them to take either chevron or circular button replaceable inserts.

**E. MANUAL OPERATED SPIDER:**

The slips for CAVINS Model "B" and Model "C" "Advance" Spiders may be temporarily operated manually by inserting a bolt, pipe nipple, or wrench handle into a socket provided in one of the cross-shafts. For permanent manual operation, all models of CAVINS "Advance" Spiders can be converted in our factory or supplied minus the compressed air operating mechanism and equipped with a permanently installed lever for manual operation. The CAVINS "Advance" Spiders are successfully used for "roundtrips" on rotary drilling rigs. An adapter plate is bolted to the bottom flange of the Spider, fitting into the A.P.I. square of the rotary table master bushing, thus enabling the Spider and slips to be rotated and foot operated by a floor man. Each manually operated Spider requires the following items:

1. One Spider body assembly complete, for manual operation.
2. One slip assembly complete for each size tubing, casing, or drill pipe to be run. The slip assembly model corresponding to the body assembly model ordered.

**TECHNICAL DATA SPECIFICATIONS**

SPECIFICATIONS	MODEL "B"	MODEL "C"	MODEL "CHD"	MODEL "F"	MODEL "G"
Material	Alloy Steel Heat Treated	Alloy Steel Heat Treated	Alloy Steel Heat Treated	Alloy Steel Heat Treated	Alloy Steel Heat Treated
Weight - Less Slips	190 Lbs.	310 Lbs.	362 Lbs.	1070 Lbs.	4000 Lbs.
Height to Top of Guard	15 1/2"	16 1/2"	16 1/2"	26 3/4" a. 17" to top of bowl without guard. b. 22 1/4" to high- est point without guard	35" a. 17" to top of bowl without guard. b. 22 1/4" to high- est point without guard
Base Dimensions	14" X 17"	16 1/2"X18 1/2"	16 1/2"X18 1/2"	28" X 28"	41" X 41 5/8"
Bolt Centers	11 1/8"-16 1/2"	12 3/4"-14 1/2"	12 3/4"-14 1/2"	18 3/4"-24 1/2"	31" to 37"
Gate Opening	4 1/4"	5 3/4"	5 3/4"	8 3/4"	13 3/4"
Bowl Opening	4 3/4" DIA.	6 1/2" DIA.	6 1/2" DIA.	10 1/8" Dia. API Standard	15 1/2" DIA.
Operating Air Pressure	35-45 PSI	40-50 PSI	40-50 PSI	60-80 PSI	250-300 PSI
Operating Hydraulic Pressure	250-275 PSI	250-275 PSI	250-275 PSI	275-300 PSI	300-350 PSI
Hydraulic Fluid Consumption of Cylinder	1/400 Cu. Ft./ Stroke	1/400 Cu. Ft./ Stroke	1/250 Cu.Ft./ Stroke	1/250 Cu. Ft./ Stroke	On Request
Tubular Goods Range	1.315"-3 1/2" O.D.	1.315"-5 1/2" O.D.	1.315"-5 1/2" O.D.	2 3/8"-8 5/8" O.D.	2 3/8"-13 3/8" O.D.

**CAPACITY (HOOK LOAD)**

Maximum load capacity with an ample safety factor	110,000 Lbs.	165,000 Lbs.	250,000 Lbs.	320,000 Lbs.	700,000 Lbs.
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To calculate maximum setting depth of string, divide the maximum load capacity by the weight per foot Threaded and Coupled ("T & C") of the tubular goods to be handled.

For slips with Circular Button Inserts (Type "CBI") and Strip Inserts (Type "SI"), reduce calculated setting depth by 40%.

For slips with Chevron Inserts (Type "CI"), reduce calculated setting depth by 25%.

For slips with Full Circle Wickers (Type "FC"), no reduction of the calculated setting is necessary.

For slips with Full Circle Inserts (Type "FCI"), no reduction of the calculated setting is necessary.

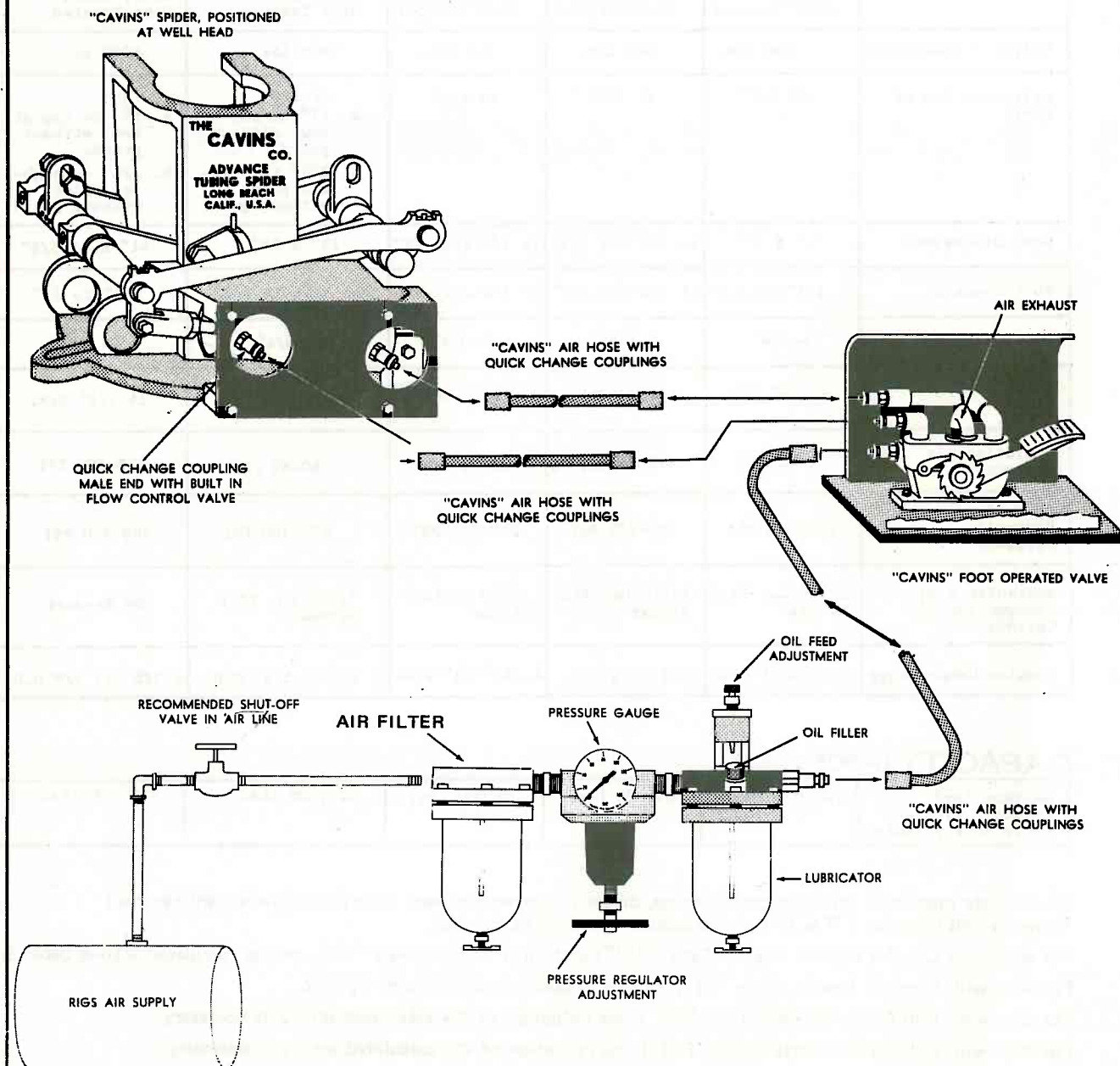
For slips with Horizontal Tooth Inserts (Type "HTI"), for Model "F" Spider only, reduce calculated setting depth by 25% for drill pipe only.



# GENERAL INFORMATION

## TYPICAL INSTALLATION OF AN AIR-OPERATED SPIDER

### TYPICAL INSTALLATION OF AN AIR-OPERATED SPIDER





CAVINS  
ADVANCE  
SPIDERS

**MODEL "G"**

SECTION  
400

SPIDER AND ACCESSORIES

PAGE

PART NO.	DESCRIPTION	UNIT LIST PRICE	UNIT NET WEIGHT
TG100-S	CAVINS "Advance" MODEL "G" AIR OPERATED SPIDER FOR 2 3/8" TO 13 3/8" OD TUBULAR GOODS, COMPLETE WITH AIR CYLINDER AND GATE FOR SINGLE STRING OPERATION. (700,000 LBS HOOK LOAD CAPACITY)		3,460
TGH100-S	CAVINS "Advance" MODEL "G" HYDRAULIC OPERATED SPIDER FOR 2 3/8" TO 13 3/8" OD TUBULAR GOODS, COMPLETE WITH HYDRAULIC CYLINDER AND GATE FOR SINGLE STRING OPERATION. (700,000 LBS HOOK LOAD CAPACITY)		3,460
TG101-A	GUARD FOR MODEL "G" SPIDER		278
TG800-1	SLIP BOWL LINER FOR 8 5/8" TO 9 5/8"		396
TG800-2	SLIP BOWL LINER FOR 2 3/8" TO 7 5/8"		567

REPLACEMENT PARTS

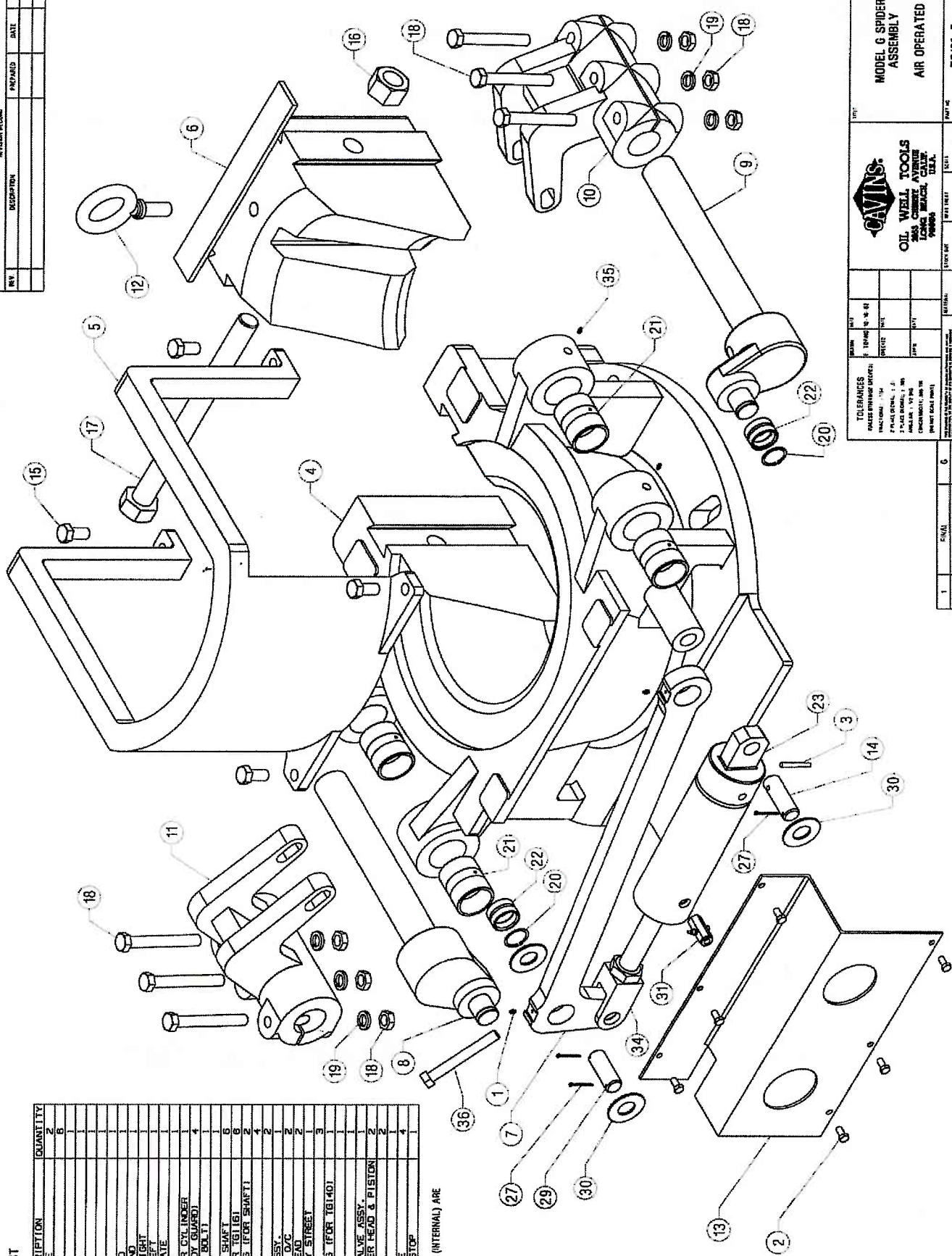
PART NO.	DESCRIPTION	NO. REQ'D	UNIT LIST PRICE	UNIT NET WEIGHT
TG102-SF	GATE -SEMI FINISHED	1		525
TG103	LINK ASSEMBLY	1		65
TG104	SHAFT (left hand crank)	1		92
TG105	SHAFT (right hand crank)	1		84
TG106-L	LIFTING ARM (left hand)	1		140
TG106-R	LIFTING ARM (right hand)	1		140
TG107	EYE BOLT FOR GATE	1		4
TG108	CYLINDER GUARD	1		35
TG109	SUPPORT PIN FOR CYLINDER	1		2
TG111	PIN FOR CYLINDER YOKE	1		2.5
TG112	CAP SCREW FOR BODY GUARD	4		1
TG113	CAP SCREW FOR CYLINDER GUARD	6		.3
TG114	HEX NUT FOR GATE BOLT	1		1
TG115	GATE BOLT	1		19
TG116	BOLT AND NUT FOR SHAFT	4		4.5
TG117	LOCKWASHER FOR TG116	4		.3
TG122	RETAINING RING FOR SHAFT	2		.3
TG124	BUSHING FOR SHAFT	4		3
TG125	BUSHING FOR LINK	2		1
TG140-N	AIR CYLINDER ASSEMBLY	1		110
TGH160	HYDRAULIC CYLINDER ASSEMBLY	1		90

8	7	6	5	4	3	2	1
REVISION RECORD							
REV	DESCRIPTION	DATE	APPROV				

# PARTS LIST

ITEM PART NO.	DESCRIPTION	QUANTITY
1	16123 FITTING, GREASE	2
2	16113 SCREW, CAP	6
3	16118 PIN, TAPER	1
4	16101 BODY	1
5	16101-A GUARD, BODY	1
6	16102 GATE	1
7	16103 LINK ASSEMBLY	1
8	16104 SHAFTER, LEFT HAND	1
9	16104 SHAFTER, RIGHT HAND	1
10	16106-R LIFTING ARM, RIGHT	1
11	16106-L LIFTING ARM, LEFT	1
12	16107 EYE BOLT FOR GATE	1
13	16108 CYLINDER GUARD	1
14	16109 SUPPORT PIN FOR CYLINDER	1
15	16112 SCREW, CAP (BODY GUARD)	4
16	16114 NUT, HEX (GATE BOLT)	1
17	16115 BOLT, HEX (GATE BOLT)	1
18	16116 DOOR WASHER (FOR T616)	5
19	16119 RING, RETAINING (FOR SHAFT)	2
20	16122 RUSHING, LINK	2
21	16124 RUSHING, LINK	2
22	16125 COUPLING, MALE O/C	2
23	16128 BUSHING, HEX HEAD	2
24	16273 BUSHING, 1/2" HEAVY STREET	1
25	16247 BALL, 1/2" HEAVY STREET	1
26	16247 BALL, 1/2" HEAVY STREET	1
27	16247 BALL, 1/2" HEAVY STREET	1
28	16111 RING, RETAINING (FOR T6140)	3
29	16111 RING, RETAINING (FOR T6140)	3
30	16126 WASHER, YOK	1
31	16130 FLOW CONTROL VALVE ASSY.	1
32	16145 O-RING, CYLINDER HEAD & PISTON	2
33	16146 O-RING, PISTON	2
34	16149 YOK	1
35	16123 FITTING, GREASE	4
36	16176 SCREW, TRAVEL STOP	1

NOTE: AIR CYLINDER ASSY. COMPONENTS (INTERNAL) ARE UNDER PART #TG140.



**OIL WELL TOOLS**  
2845 CHERRY AVENUE  
LONG BEACH, CALIF.  
90801

MODEL G SPIDER  
ASSEMBLY  
AIR OPERATED

TOLERANCES  
UNLESS OTHERWISE SPECIFIED:  
FRACTIONS: .0005  
DECIMALS: .001  
ANGLES: .001  
DIMENSIONS: .001

DATE: 10/10/62  
DRAWN BY: J. J. JONES  
CHECKED BY: J. J. JONES  
APPROVED BY: J. J. JONES

REV. NO. 1  
REV. DATE 10/10/62  
REV. BY J. J. JONES

8	7	6	5	4	3	2	1
TOLERANCES							
UNLESS OTHERWISE SPECIFIED:							
FRACTIONS: .0005							
DECIMALS: .001							
ANGLES: .001							
DIMENSIONS: .001							
DATE: 10/10/62							
DRAWN BY: J. J. JONES							
CHECKED BY: J. J. JONES							
APPROVED BY: J. J. JONES							
REV. NO. 1							
REV. DATE 10/10/62							
REV. BY J. J. JONES							





CAVINS  
Advance  
SPIDERS

**MODEL "G"**

SECTION

400

SLIPS, TYPE "FCR" COMPLETE WITH "FCI" INSERTS

PAGE

SLIPS AVAILABLE FOR API PIPE SIZES		MASTER SLIP BODY  SIZE	NO. OF TYPE "FCI" FULL CIRCLE INSERTS PER SETS	FOR SINGLE STRINGS		
				PART NO.	SLIPS COMPLETE WITH INSERTS	
O.D.	NOM.				LIST PRICE \$	NET WT. LBS
2 3/8	2	3 1/2	4	TG620-FCR-2 3/8		202
2 7/8	2 1/2	3 1/2	4	TG620-FCR-2 7/8		196
3 1/2	3	3 1/2	4	TG610-FCR-3 1/2		186
4	3 1/2	5 1/2	4	TG620-FCR-4		254
4 1/2	4	5 1/2	4	TG620-FCR-4 1/2		242
5	-	5 1/2	4	TG620-FCR-5		231
5 1/2	-	5 1/2	4	TG610-FCR-5 1/2		214
6 5/8	-	7 5/8	4	TG620-FCR-6 5/8		312
7	-	7 5/8	4	TG620-FCR-7		299
7 5/8	-	7 5/8	4	TG610-FCR-7 5/8		273
8 5/8	-	9 5/8	8	TG620-FCR-8 5/8		389
9 5/8	-	9 5/8	8	TG610-FCR-9 5/8		340
10 3/4	-	11 3/4	8	TG620-FCR-10 3/4		560
11 3/4	-	11 3/4	8	TG610-FCR-11 3/4		492
13 3/8	-	13 3/8	8	TG610-FCR-13 3/8		653

"FCR" SLIP BODIES ONLY - LESS INSERTS, BUT WITH RETAINING PINS			
MASTER SLIP BODY SIZE	PART NO.	LIST PRICE \$	NET WT. LBS.
3 1/2	TG600-FCR-3 1/2		155
5 1/2	TG600-FCR-5 1/2		168
7 5/8	TG600-FCR-7 5/8		209
9 5/8	TG600-FCR-9 5/8		267
11 3/4	TG600-FCR-11 3/4		408
13 3/8	TG600-FCR-13 3/8		296

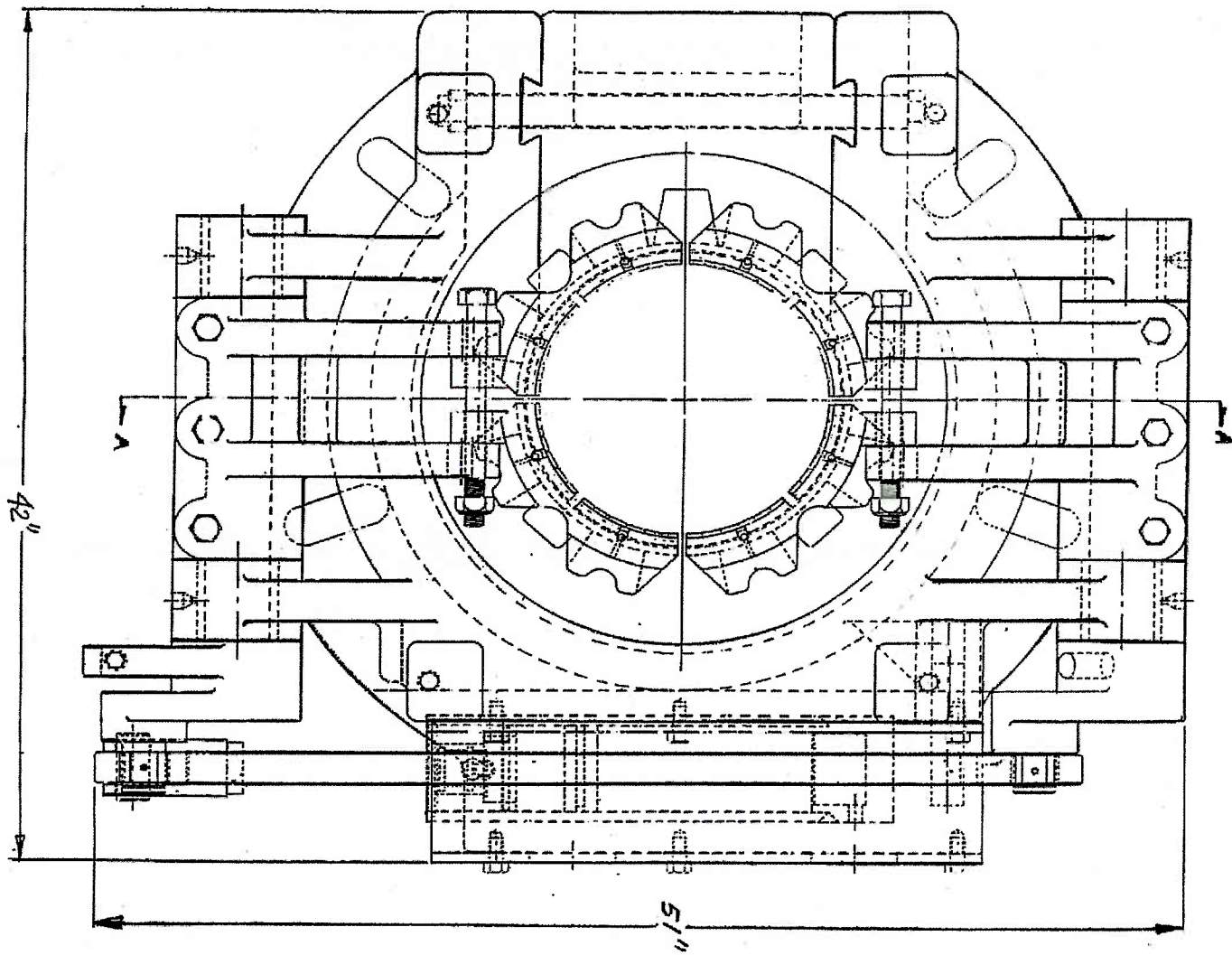


**MODEL "G"**

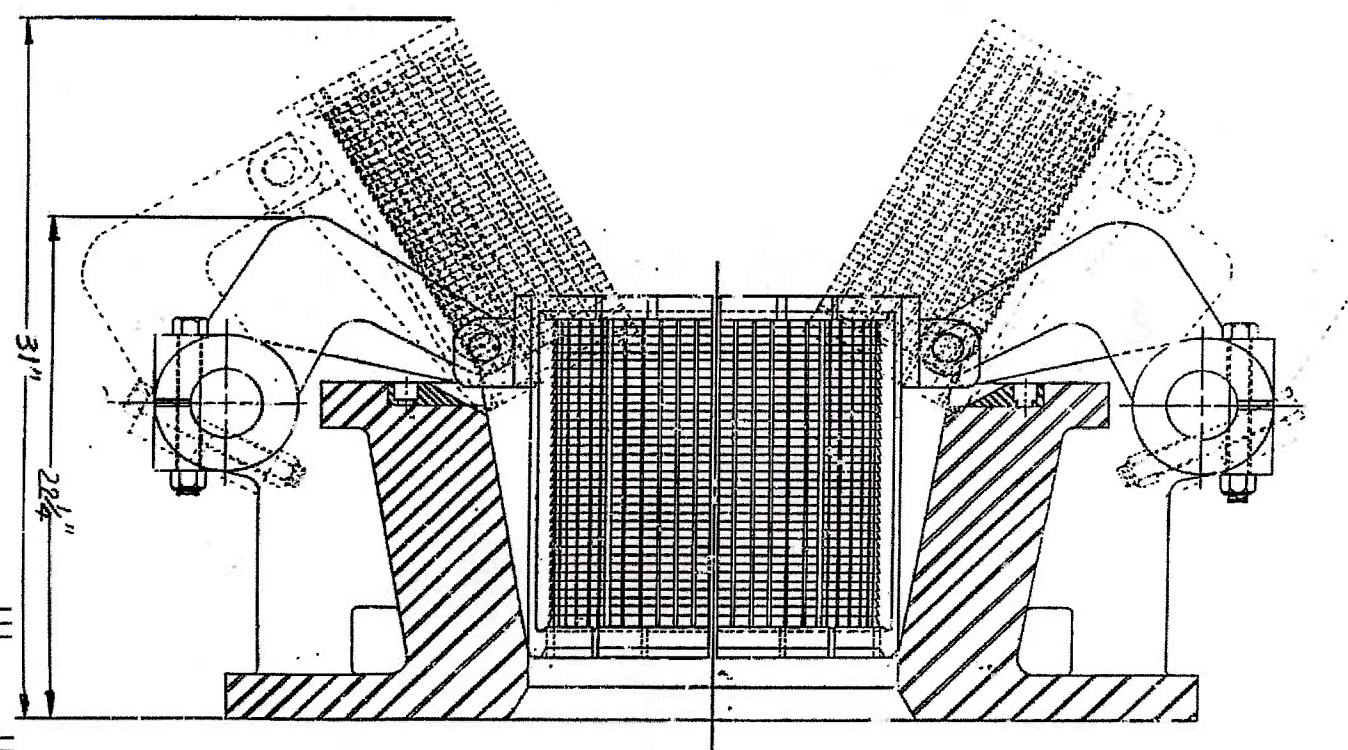
INSERTS, TYPE "FCI" FOR SINGLE STRING

TO HANDLE API TUBULAR GOODS SIZE		INSERTS - "FULL CIRCLE" - TYPE "FCI" FOR TYPE "FCR" SLIPS FOR SINGLE STRINGS				
		PER SET				
O.D.	NOM.	NO. REQ'D	PART NO.	LIST PRICE \$	NET WT. LBS.	MASTER BODY
2 3/8	2	4	TG651-3 1/2x2 3/8		47	3 1/2
2 7/8	2 1/2	4	TG651-3 1/2x2 7/8		41	3 1/2
3 1/2	3	4	TG650-3 1/2		31	3 1/2
4	3 1/2	4	TG651-5 1/2x4		86	5 1/2
4 1/2	4	4	TG651-5 1/2x4 1/2		74	5 1/2
5	-	4	TG651-5 1/2x5		63	5 1/2
5 1/2	-	4	TG650-5 1/2		46	5 1/2
6 5/8	-	4	TG651-7 5/8x6 5/8		103	7 5/8
7	-	4	TG651-7 5/8x7		90	7 5/8
7 5/8	-	4	TG650-7 5/8		64	7 5/8
8 5/8	-	8	TG651-9 5/8x8 5/8		122	9 5/8
9 5/8	-	8	TG650-9 5/8		73	9 5/8
10 3/4	-	8	TG651-11 3/4x10.75		152	11 3/4
11 3/4	-	8	TG650-11 3/4		84	11 3/4
13 3/8	-	8	TG650-13 3/8		86	13 3/8

SLIP ASSEMBLY HARDWARE				
SPARE PARTS				
DESCRIPTION	NO. PER SET REQ'D	PART NO.	LIST PRICE EACH \$	NET WEIGHT EACH
EYE BOLT FOR SLIP BODIES	4	TG153		
ARM BOLT	4	TG154		
NUT FOR ARM BOLT	4	TG155		



NOTE: OVERALL HEIGHT WITH SPIDER  
GUARD (OPTIONAL) IS 33 3/4".



THE GAYNE CO.	DESIGNED BY	DATE
100 N. 10th St.	W. J. GAYNE	10/1/50
ST. LOUIS, MO.		
THE GAYNE CO.	MANUFACTURED BY	DATE
100 N. 10th St.	W. J. GAYNE	10/1/50
ST. LOUIS, MO.		

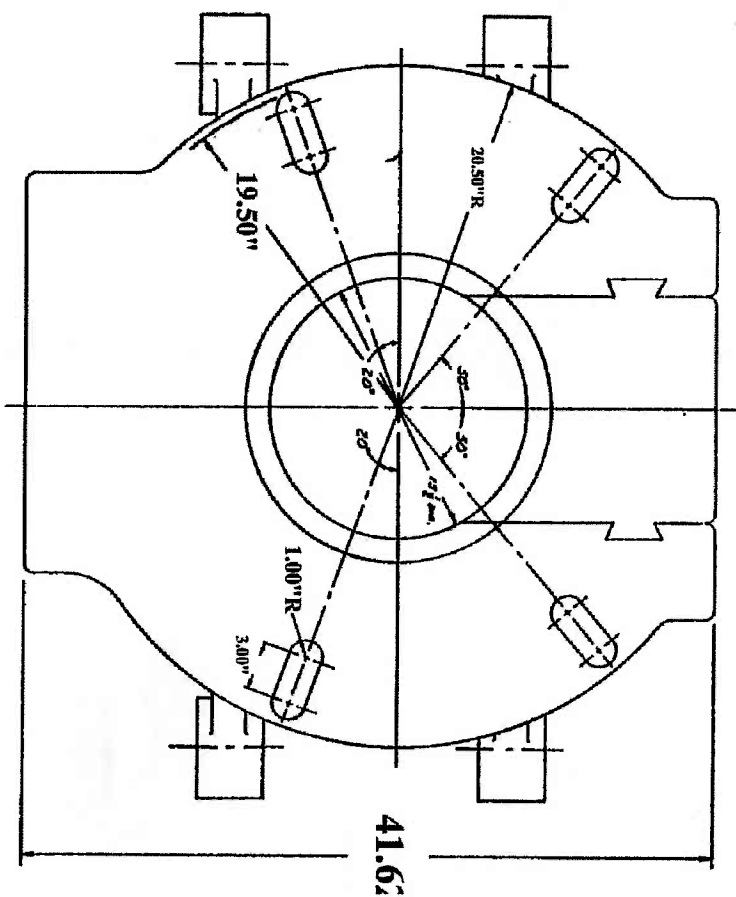
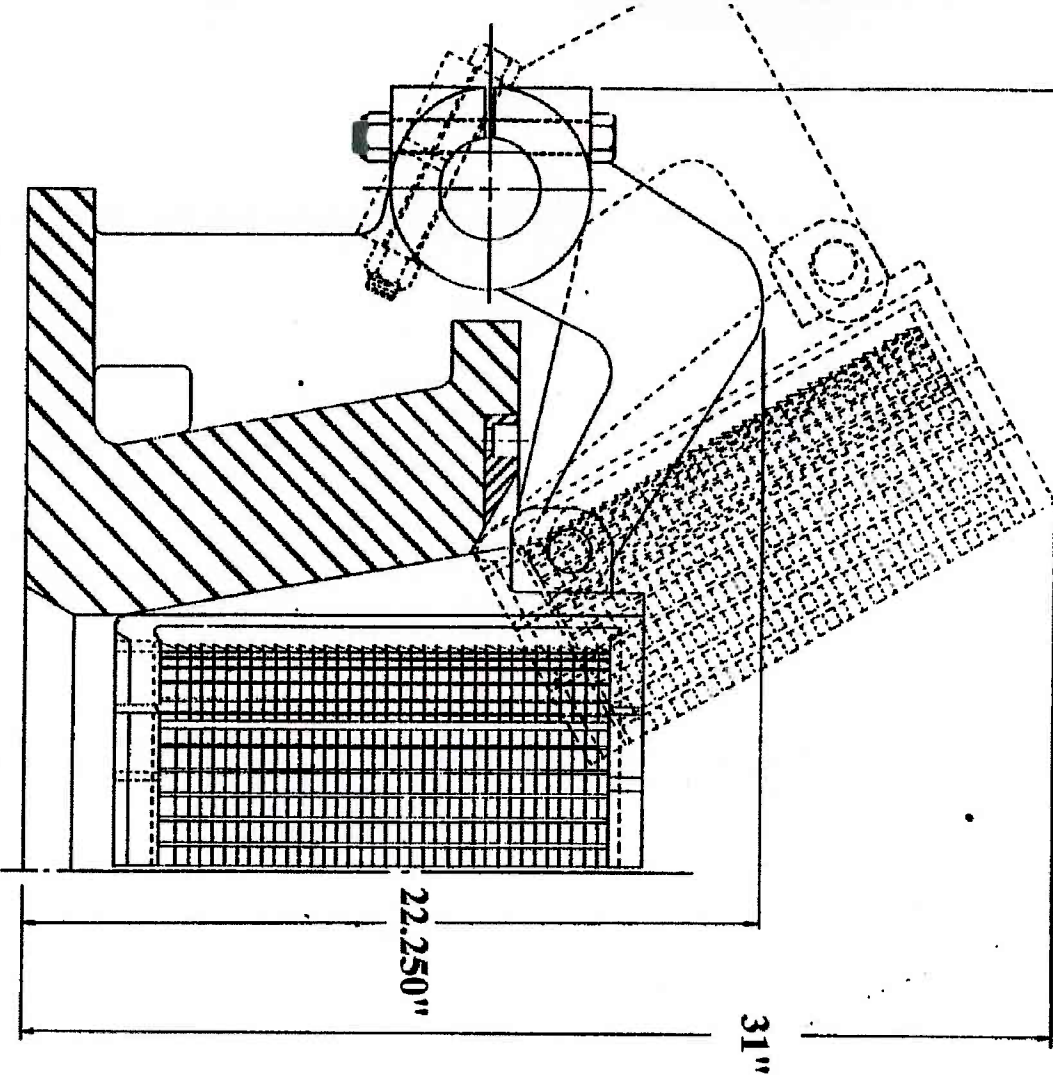
4 3 2 1

SLIT IN OPEN POSITION

56"

SLIT IN CLOSED POSITION

47"



VIEW FROM BASE  
OF SPIDER

THE CAVINS CO. 200 E. 10th St. LAKE CHARLES, LOUISIANA U.S.A.	MODEL NO. SP-10 MOUNT DIMENSIONS
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