Transmission Tools

Warranty - Material

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Responsibility for selection of the proper product or application rests solely with the purchaser. In the event of errors or inaccuracies determined to be caused by Hubbell Power Systems, Inc., its liability will be limited to the re-performance of any such analysis or study.

Live-Line Work Minimum Approach Distances

Nominal Voltage in Kilovolts Phase-to-Phase			Distance			
			Phase-to-ground exposure		Phase-to-phase exposure	
			(ft.-in.)	(m)	(ft.-in.)	(m)
0.05	to	1.0	*	*	*	*
1.1	to	15.0	2-1	0.64	2-2	0.66
15.1	to	36.0	2-4	0.72	2-7	0.77
36.1	to	46.0	2-7	0.77	2-10	0.85
46.1	to	72.5	3-0	0.90	3-6	1.05
72.6	to	121	3-2	0.95	4-3	1.29
138	to	145	3-7	1.09	4-11	1.50
161	to	169	4-0	1.22	5-8	1.71
230	to	242	5-3	1.59	7-6	2.27
345	to	362	8-6	2.59	12-6	3.80
500	to	550	11-3	3.42	18-1	5.50
765	to	800	14-11	4.53	26-0	7.91

- Distances agree with OSHA guidelines in Table R-6 of the Federal Register published 1/31/94. These distances take into consideration the highest switching surge an employee will be exposed to on any system with air as the insulating medium and the maximum voltages shown.
- The clear live-line tool distance shall equal or exceed the values for the indicated voltage ranges.

*Avoid contact.

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Printed in USA

STRAIN LINK STICK

Tested per OSHA & ASTM F711

On deadend structures and running corners, a Strain Link Stick is used as insulation between rope blocks and a cum-a-long clamp.

Conductor loads on long spans and H-frame structures are sometimes greater than can effectively be handled with wire tongs. To supplement the wire tongs, a Strain Link Stick is attached to the conductor close to the wire tong. The Strain Link Stick is supported from above by rope blocks, which are operated in unison with the rope blocks attached to the wire tong.

Strain Link Sticks are also used to support the middle conductor on H-frame structures during insulator or cross-arm changes.

Hooks and ferrules are made of heat-treated aluminum alloy for the best ratio of high strength to light weight. Butt rings — for attaching rope blocks or hand lines — are forged of high quality steel. Butt swivel spins freely on ball thrust bearing. The edges of the jaws of Chance Link Sticks are rounded to prevent scarring of conductors.

Catalog No.	Overall Length	Pole Dia. and Length	Jaw Opening Min.	Jaw Opening Max.	Max. Work Load, lb.	Approx. Wt., lb.
H47152	4'9"	1¼" x 4'	.22	.75	3500	3¾/1.7 kg.
C4000814	7'3"	1¼" x 6'	.22	.75	3500	5¼/2.4 kg.
C4000815	9'3"	1¼" x 8'	.22	.75	3500	6 /2.7 kg.
C4000816	11'3"	1¼" x 10'	.22	.75	3500	6¾/3.1 kg.
C4000817	13'3"	1¼" x 12'	.22	.75	3500	7½/3.4 kg.
C4000818	15'3"	1¼" x 14'	.22	.75	3500	8¼/3.7 kg.
H47161	3'3"	1½" x 2'	.44	1.06	6500	4¾/2.2 kg.
H47162	4'9"	1½" x 4'	.44	1.06	6500	5¾/2.6 kg.
H47163	6'9"	1½" x 6'	.44	1.06	6500	6¾/3.1 kg.
H47164	8'9"	1½" x 8'	.44	1.06	6500	7¾/3.6 kg.
H47165	10'9"	1½" x 10'	.44	1.06	6500	8¾/4.0 kg.
H47166	12'9"	1½" x 12'	.44	1.06	6500	9¾/4.4 kg.
H4717	5'0"	1½" x 4'	.72	1.50	6500	9⅞/4.5 kg.
H47171	7'2"	1½" x 6'	.72	1.50	6500	11⅞/5.4 kg.
H4718	5'2"	1½" x 4'	1.00	2.50	6500	11⅛/5.1 kg.
H47181	7'2"	1½" x 6'	1.00	2.50	6500	13 /5.9 kg.
H47182	9'2"	1½" x 8'	1.00	2.50	6500	15 /6.8 kg.
H47183	11'2"	1½" x 10'	1.00	2.50	6500	17 /7.7 kg.
H47184	13'2"	1½" x 12'	1.00	2.50	6500	19 /8.6 kg.

SPIRAL LINK STICK

Tested per OSHA & ASTM F711

The Spiral Link Stick is used in lieu of a strain link stick in close places where the lineman cannot safely install a strain link stick by hand. A lifting eye on the head ferrule enables the lineman to guide the Spiral Link Stick to the conductor with a hotstick. The pole of the Spiral Link Stick is made of 1¼" Epoxiglas®.

Ferrule castings are of heat-treated aluminum alloy; spiral hook and butt ring of galvanized steel.

Catalog No.	Overall Length	Pole Dia. and Length	Maximum Conductor Size	Max. Work Load, lb.	Approx. Wt., lb.
H4722	27½"	1¼" x 15.4"	1510.5 kcmil ACSR	3500	3½/1.6 kg.
C4000812	57½"	1¼" x 42"	1510.5 kcmil ACSR	3500	4½/2.0 kg.

ROLLER LINK STICK

Tested per OSHA & ASTM F711

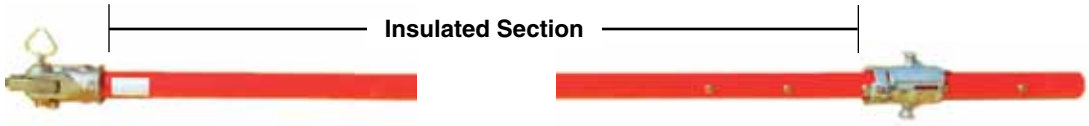
The Chance Roller Link Stick is used to spread and hold conductors aside at midspan when relocating poles. It is applied to the conductor at the pole and pulled to position by a hand line attached to the butt ring. The handline should be secured by a temporarily installed screw anchor or other fixed object.

The tool is also used for measuring conductor-to-ground clearance by attaching a measuring tape or length of rope to the butt ring. Poles for Roller Link Sticks are 1¾ inches … rotating the pole closes the hook … leaving the head free to roll along the conductor.

Catalog No.	Overall Length	Pole Dia. and Length	Maximum Conductor Size	Max. Work Load, lb.	Approx. Wt., lb.
H47144	58"	1¼" x 4'	605 kcmil ACSR	1000	3¾/1.7 kg.
H47146	82"	1¼" x 6'	605 kcmil ACSR	1000	4¼/1.9 kg.

ADJUSTABLE STRAIN POLES

Tested per OSHA & ASTM F711



Clevis furnished with high-strength steel Through Pin E4011510 and Klik Pin P059738P. 2-in. Pole Clamp E4010138 included with each Strain Pole listed below.

12" Strain Jack E4011998 included with each Strain Pole listed below.

Applications and design

Key to many transmission and EHV maintenance jobs, these hot-line tools help support conductors while insulators are removed and replaced. Adjustable strain poles can be used with yoke plates and hook assemblies at the conductor and structure ends of suspension, V-string or deadend insulator strings.

To support the hot-end trunnions or hooks, five stainless-steel crosspins are located at 6" intervals on the 2"-diameter Epoxiglas® poles. To engage deadend and suspension yokes at the hot end also requires the adjustable pole clamp of heat-treated aluminum. This pole clamp can be unlocked and positioned by hotsticks.

On the cold end, a high-strength steel strain-jack with bronze tongue provides take-up with a ratchet wrench (see page 2257) and trunnions (page 2255). Wrench and trunnions must be ordered as separate items. Standard strain jack furnished with each strain pole provides 12" of adjustment. Longer strain jacks (for 24" or 36" of take-up) and extra pole clamps also may be ordered as options below.

Ordering Information

Adjustable Strain Poles

- **7,500-lb. maximum load rating (2"-diameter Epoxiglas pole)**
- **2-ft. adjustment by Pole Clamp (furnished) in 6" increments on five stainless-steel pins**
- **12"-long Strain Jack E4011998 furnished as standard**
- **Optional 24" & 36" strain jacks and extra pole clamps available below**

Catalog No.	Description	Maximum Voltage Use	Insulated Section	Overall Length	Weight
C4012144	6-ft. Strain Pole	72.5 kV	36 in. (91.44 cm)	7 ft.-8 in.	18 lb. / 8.1 kg.
C4012145	7-ft. Strain Pole	169 kV	48 in. (121.92 cm)	8 ft.-8 in.	18 3/4 lb. / 8.4 kg.
C4012146	8-ft. Strain Pole	242 kV	63 in. (160.02 cm)	9 ft.-11 in.	19 1/2 lb. / 8.8 kg.
C4012147	10-ft. Strain Pole	302 kV	84 in. (213.36 cm)	11 ft.-8 in.	20 7/8 lb. / 9.4 kg.
C4012215	12-ft. Strain Pole	362 kV	102 in. (259.8 cm)	13 ft.-2 in.	22 1/4 lb. / 10 kg.
C4012148	14-ft. Strain Pole	552 kV	135 in. (342.9 cm)	15 ft.-11 in.	23 3/4 lb. / 10.7 kg.
C4012149	18-ft. Strain Pole	765 kV	180 in. (457.2 cm)	19 ft.-8 in.	26 1/2 lb. / 11.9 kg.

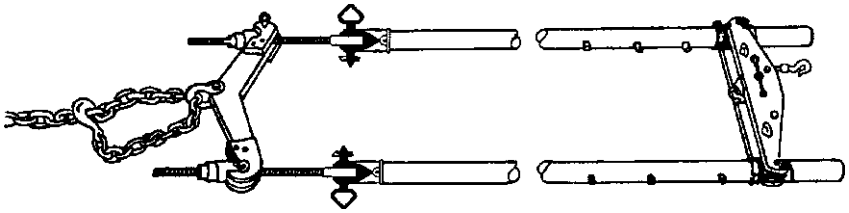
Accessories

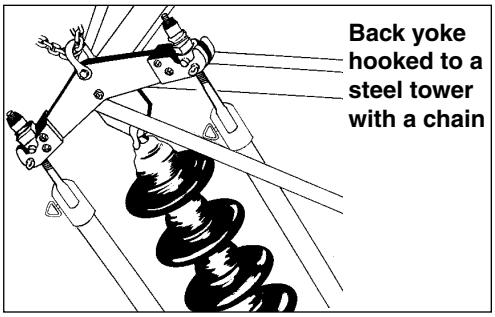
E4010138P	2" Adjustable Pole Clamp	2 lb. / 0.9 kg.
E4011998P	12"-Acme-thread Strain Jack	3 lb. / 1.4 kg.
V4010157P	24"-Acme-thread Strain Jack	4 lb. / 1.8 kg.
V4010158	36"-Acme-thread Strain Jack	6 lb. / 2.7 kg.
E4011510P	Steel Through Pin	3/8 lb. / 0.17 kg.
059738P	Klik Pin	1/16 lb. / 0.03 kg.

Heavy Duty Two-Pole Strain Carriers (15,000 lb.)

See page 2257 for Ratchet Wrench.

Tested per OSHA & ASTM F711



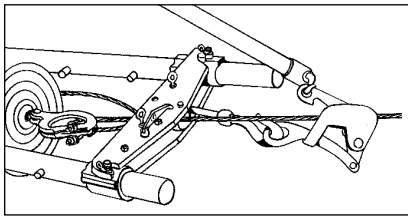


Back yoke hooked to a steel tower with a chain

Two-pole Strain Carriers relieve strain from an insulator string to permit removal from energized lines. Normally used on a single string of insulators, these carriers sometimes are used for multiple strings where conductor-end hardware permits attachment.

Available here as complete assemblies, separate components also may be ordered. For adjustable strain poles, see page 2253; for yokes, sockets and trunnions, see page 2255.

Yokes are fabricated from high-strength aluminum plate and include a steel chain assembly for anchoring the back plate to the structure. Conductor-end yoke includes a hook and a machined socket (C4011894).



Front yoke hooked into a wire-grip clamp

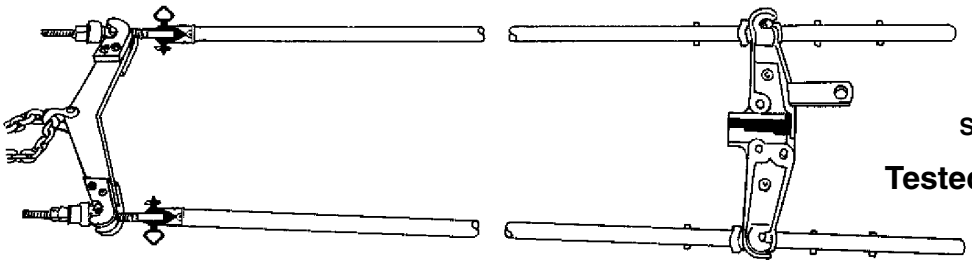
Maximum load rating for each of the strain-carrier assemblies listed below is 15,000 lb. per insulator string.

Catalog Number	Nominal Pole Length	Distance Between Yokes		Weight, each assembly
		Minimum	Maximum	
C4012174	6 ft.	49 "	81"	81 lb. / 36.45 kg.
C4012175	7 ft.	59 "	93"	83 lb. / 37.35 kg.
C4012176	8 ft.	74 "	108"	85 lb. / 38.25 kg.
C4012177	10 ft.	95 "	129"	89 lb. / 40.05 kg.
C4012216	12 ft.	113 "	147"	95 lb. / 42.27 kg.
C4012178	14 ft.	146"	180"	97 lb. / 43.65 kg.
C4012179	18ft.	191"	225"	105 lb. / 47.25 kg.

Common features for all units listed:

- **Two 2"-diameter Epoxiglas poles**
- **Yokes are 26" wide on pole centers**
- **2-ft. adjustment in 6" increments on five stainless-steel pins per pole**
- **12"-long Strain Jacks**

Standard Duty Strain Carriers (6,500 lb.)



See page 2257 for Ratchet Wrench.

Tested per OSHA & ASTM F711

This tool assembly has the same basic use as the two-pole strain carrier: Relieving strain while removing a single string of insulators. The distribution strain carrier has a compression deadend yoke at the hot end which is equipped with a various shoe sizes to grip the conductor ahead of insulator-conductor hardware with a compression lever-type action, gripping tighter as the load increases. The various shoes furnished with the kit fit conductors from 0.292" through 0.806" (No. 2 through 397.5 ACSR).

Maximum load rating for each distribution strain-carrier assembly listed below is 6,500 lb. per insulator string.

- **Two 1¼"-diameter Epoxiglas poles**
- **Yokes are 21" wide on pole centers**
- **2-ft. adjustment in 6" increments on five stainless-steel pins per pole**
- **12"-long Strain Jacks**

Catalog Number	Nominal Pole Length	Distance Between Yokes		Weight, each assembly
		Minimum	Maximum	
C4010411	6 ft.	47½"	81"	82 lb. / 36.9 kg.
C4010410	8 ft.	71½"	105"	92 lb. / 41.4 kg.

Two-Pole Strain Carrier Accessories

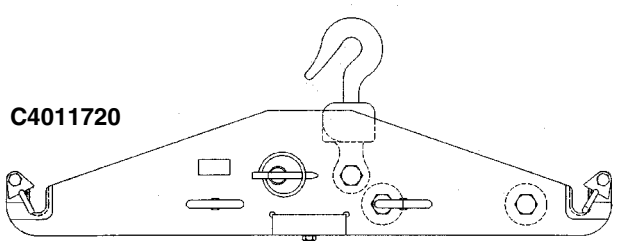
Two-Pole Yokes

Two-pole yokes can be ordered separately to make up any of the two pole strain carriers shown on Page 2254. The yokes are fabricated of high strength (3/4" and 1" thick) aluminum plate.

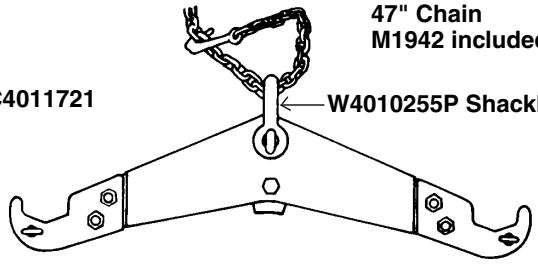
The yokes have 26" width between the center of the adjustable strain poles used with them. Maximum load ratings are 15,000 pounds per insulator string.

Catalog No.	Description	Weight
C4011720	Conductor End Yoke Assembly	25 lb./11.3 kg.
C4011721	Structure End Yoke Assembly	20 lb./ 9.0 kg.

C4011720



Includes hook and C4011894 Socket



Includes steel loading chain and attachment hardware.

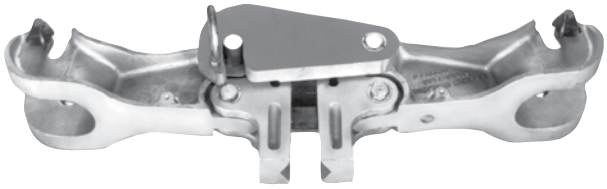
Deadend Compression Yoke Assembly

Used with Two-Pole Strain Carriers, these units grip compression sleeves over the compressed area, requiring no shoulder or adapter to pull against. Castings are heat treated aluminum. When used with 2" adjustable strain poles, this assembly is rated at 11,000 pounds maximum load.

Designed specifically for use on extension links. A swing up gate exposes the shoe area of the assembly to the load and must be closed before taking up tension.

Catalog No.	Description	Weight
C4010095	Compression Yoke Assembly Complete with a Hot Line Extension Link for 3/4" and 1" dia. shank	44 lb./19.8 kg.

C4010095

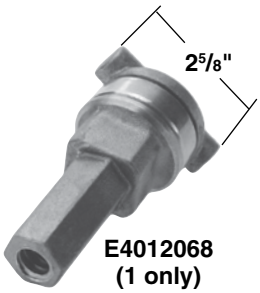


Take-Up Trunnions

For replacement or conversion, these trunnions are bronze-alloy and ball-thrust bearing construction for use on adjustable strain poles. They are designed to equal the capacity of all Chance yokes and provide maximum efficiency for the lineman. **Require M19483 Ratchet.**

Catalog No.	Description	Weight
E4012066P	One Large Trunnion, replaces 70356	3 1/2 lb./1.6 kg.
E4012068P	One Small Trunnion, replaces E4010486	2 lb./0.9 kg.

E4012066
(1 only)



E4012068
(1 only)

Trunnion Gauge

Gauge for Trunnions E4012066 and E4012068 above with 3/4" Acme threads.

Catalog No.	Description	Weight
T4012265	Trunnion Gauge for 3/4" Acme threads	1/2 lb./0.25 kg.

T4012265 Trunnion Gauge

Deadend Sockets

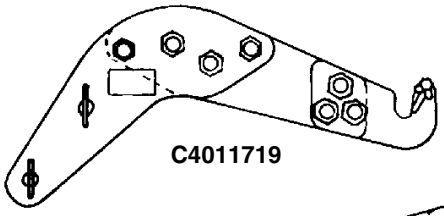
The Deadend Socket is furnished with the Two-Pole Strain Carrier. Use following catalog number for ordering replacement.

Max. Load Rating: 15,000 lb.

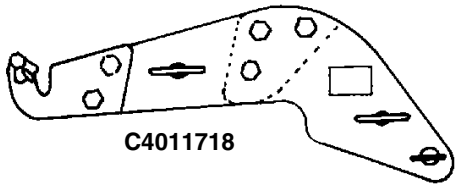
Catalog No.	Bolted Strain Clamp Max.	Conductor Range of Fittings: Maximum Copper or ACSR	Conductor Range of Fittings: Minimum Copper or ACSR	Compression Deadend Body Maximum	Approx. Weight
C4011894	For Extension Links with 7/8" Shank and 1 1/2" Collar.				

Deadend Socket

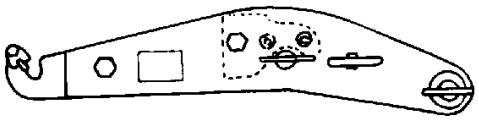
Single-Pole Strain Carrier Yokes



C4011719



C4011718

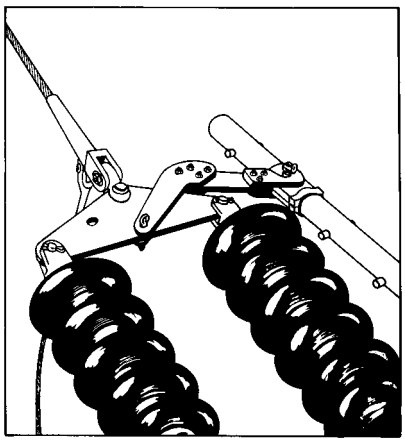


C4011717

These yokes can be used with adjustable strain poles (see page 2253) to remove the strain from one string of multiple strings of deadend insulators. Because the yokes are designed to fit various types of yoke plates, they should be purchased in pairs to fit the specific construction. The **same yoke assemblies** can be used on **both** the hot and cold end of the insulator string as they hook into the yoke plate hardware.

All of these yokes are rated at 15,000 pounds maximum load per insulator string.

Catalog No.	Fits Yoke Plates	Weight
C4011719	Flat Plates up to 3/4" thick	25 lb./11.3 kg.
C4011718	Flat Plates up to 1" thick	25 lb./11.3 kg.
C4011717	Rectangular or Triangular plates up to 3/4" thick	25 lb./11.3 kg.



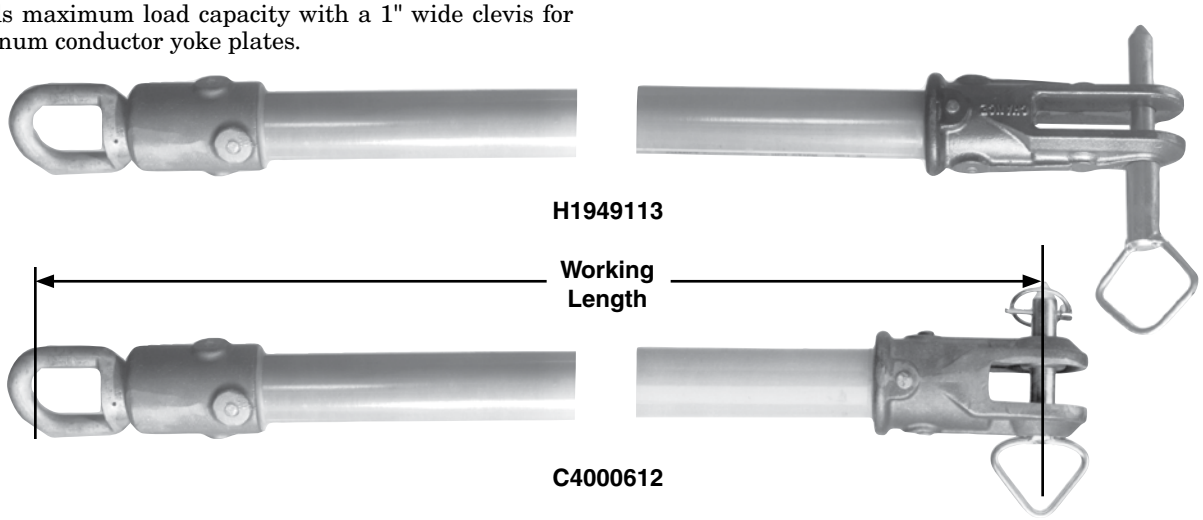
Strain Poles

For Bundle Conductor Yoke Plates

Tested per OSHA & ASTM F711

Strain Poles for conductor yoke plates accommodate a wide range of yoke plate designs and hole spacings. Both Strain Poles, of 2" diameter Epoxiglas® construction, offer 12,000-pounds maximum load capacity with a 1" wide clevis for aluminum conductor yoke plates.

Commonly used in deadend rigging, for "V" strings and restrained angles, poles offer two clevis lengths and overall lengths.



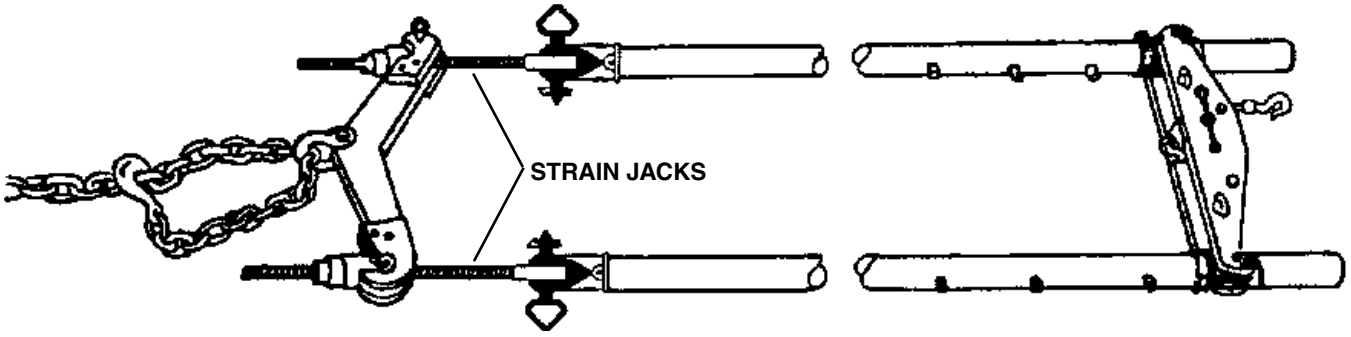
H1949113

C4000612

Catalog No.	Description	Working Length*	Max. Load	Weight
H1949113	Butt Swivel, Clevis 3.35" x 1"	113"	12,000 lb.	17 lb./7.7 kg.
C4000612	Butt Swivel, Clevis 1.56" x 1"	113"	12,000 lb.	14 lb./6.3 kg.
C4000613	Butt Swivel, Clevis 1.56" x 1"	134"	12,000 lb.	15 lb./6.8 kg.
PSC4002915	Clevis, Clevis 1.56" x 1"	113"	12,000 lb.	14 lb./6.3 kg.
PSC4002916	Clevis, Clevis 1.56" x 1"	134"	12,000 lb.	15 lb./6.8 kg.

* Distance from centerline of pin to inside end of butt ring.

Strain Pole Accessories



Strain Jacks
E4011998, V4010157 & V4010158.

M19483
Ratchet Wrench

Catalog No.	Description	Weight
M19483	Ratchet Wrench	2.2 lb./1 kg.
E4011998P	Strain Jack (12" Long) Tongue Type	3 lb./1.4 kg.
V4010157P	Strain Jack (24" Long) Tongue Type	4 lb./1.8 kg.
V4010158	Strain Jack (36" Long) Tongue Type	6 lb./2.8 kg.
H47852	Strain Jack (18" Long) Clevis Type	8 lb./3.6 kg.
H47853	Strain Jack (24" Long) Clevis Type	10 lb./4.5 kg.
SPM29471	Acme Eyenut	1 lb./0.5 kg.

Insulator Cradles

Tested per OSHA & ASTM F711

Three basic types of Insulator Cradles are available for various insulator changeout requirements:

TRANSMISSION CRADLE is designed to be used on 69 kV to 115 kV deadend or suspension strings supported by a pair of wire tongs or link sticks.

EHV TROUGH-DESIGN CRADLE is designed to be used on 345 kV to 500 kV deadend or suspension strings and in combination with insulator cradle carriers for moving the insulators. (See catalog page 2259.)

EHV SIDE-OPENING CRADLE is designed to be used on only EHV deadend strings for removing only one string in a double, triple or quad deadend bundle. (See catalog page 2260.)

TRANSMISSION INSULATOR CRADLE

This Chance Insulator Cradle is used to make insulator changes by supporting the string while damaged insulators are replaced, or to pivot the string so that it may be removed and lowered to the ground. On deadends or running corners these cradles are used in conjunction with strain carriers; and in straight suspensions they are used with various types of link sticks or adjustable strain pole assemblies.

Insulator Cradles are made with three 1½" dia. Epoxiglas® poles. Light in weight, they are easy to handle and adaptable to many applications.

Lugs located at the forward end of the cradle are used to support the insulator string with a pair of wire tongs or link sticks. The back end of the cradle is supported by ropes tied at the structure. Hinged in this manner the insulators may be lowered or raised to the best position for changing damaged insulators.

In some cases, the cradle is supported in eyes located on the forward yoke of Two-Pole Strain Carriers. This is done when raising or lowering of the insulator string is unnecessary.

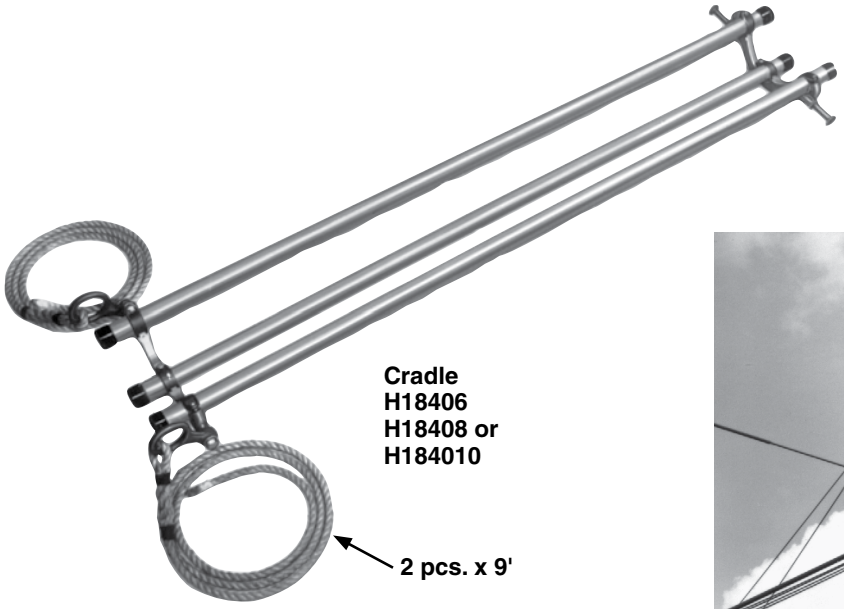


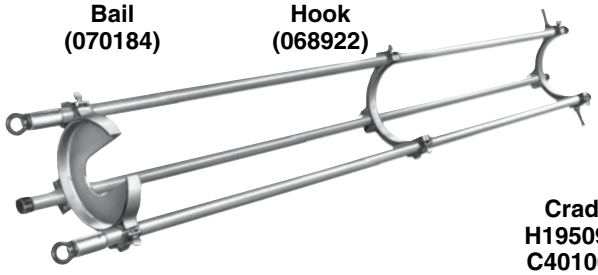
Photo at right shows the insulator cradle being raised or lowered with the use of wire tongs.

Catalog No.	Overall Length	Recommended Capacity	Approx. Weight
H18406	6-ft. (180cm)	10 10" (250mm) Insulators	19¾ lb./ 8.887 kg.
H18408	8-ft. (240cm)	14 10" (250mm) Insulators	24 lb./11.262 kg.
H184010	10-ft. (300cm)	18 10" (250mm) Insulators	27 lb./13.837 kg.

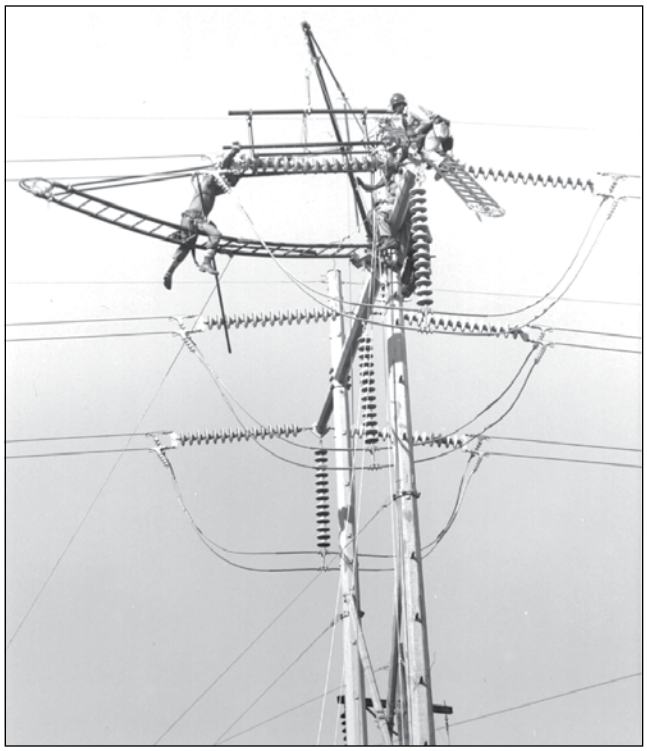
EHV Trough-Design Insulator Cradle

Bail (070184)

Hook (068922)



Cradle H19509 or C4010015



Tested per OSHA & ASTM F711

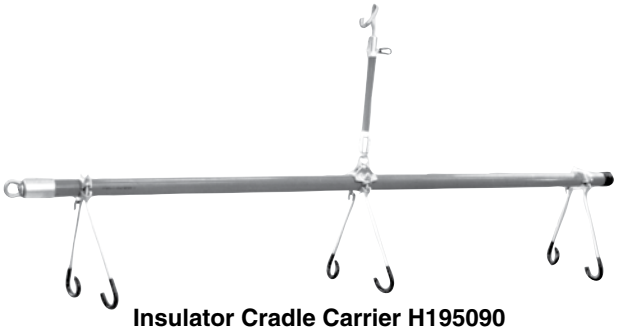
This Chance Cradle is used for making insulator changes on lines energized up to and including 500 kV. It is used to lower insulator strings on deadend and swinging-corner construction, and to raise the insulators on long suspension units.

Heat-treated aluminum castings, durable Epoxiglas® poles, and steel hardware combine to make the cradle a strong and dependable piece of equipment. The aluminum castings are a weight-saving feature providing ease in handling.

The deep "trough" design of the cradle holds the insulator string securely and prevents accidental dropping of the string while the slotted insulator-retaining plate secures the top insulator of the string.

The insulator-laden cradle can be raised or lowered for easier insulator changes using a bail attached to a link stick. Hooks are furnished for installing and removing the deadend tool from insulator yokes.

Catalog No.	Description	Max. 10" Insulator Capacity	Weight
H19509	9' Insulator Cradle	19	23 lb./10.45 kg.
C4010015	11'4" Insulator Cradle	25	27 lb./12.27 kg.
H195090	Insulator Cradle Carrier	—	25 lb./11kg.



Insulator Cradle Carrier H195090

The Insulator Cradle Carrier utilizes a spiral link stick as a support member for the three hook and clamp assemblies and has a 2½" Epoxiglas® insulated ridgepole. The maximum load is 500 pounds.

STATIC GROUND

Designed to eliminate the problem of electrostatic charge when working insulator strings. The Chance Static Ground drains off the charge from the insulator string to the tower leg. Six feet of No. 2 grounding cable is attached to the Static Ground tool and a flat face clamp attaches to the either end of the grounding cable.

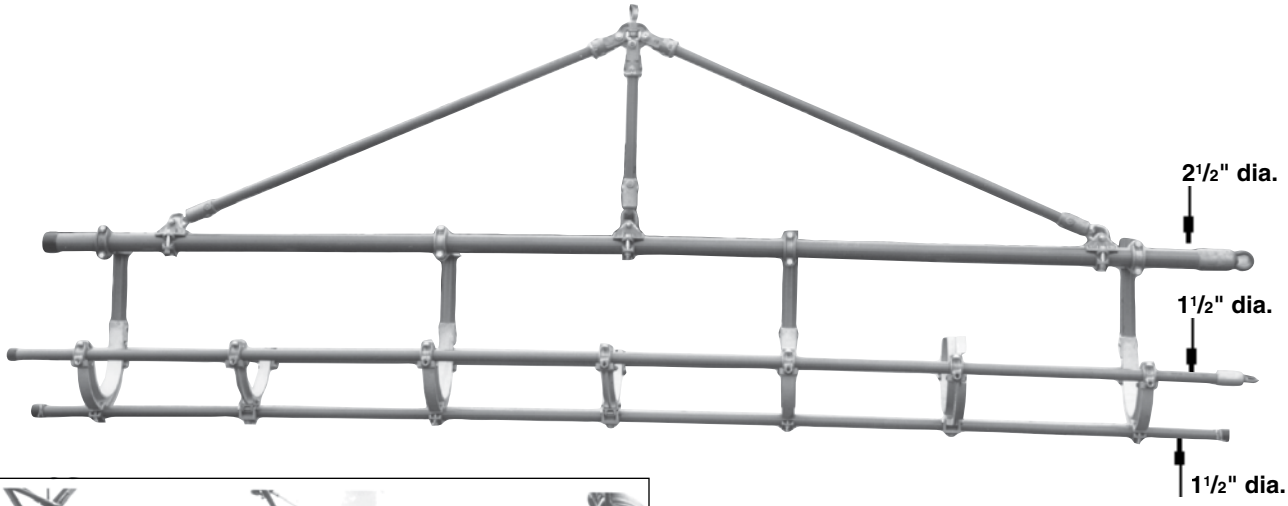
The adjustable jaws of the Static Ground fit insulator caps from 2½" to 6". Overall length with a 1¼" x 19" Epoxiglas® pole, is 30".

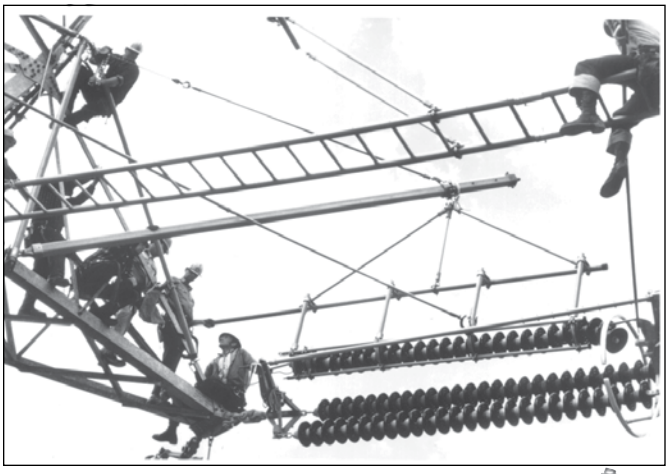
To ground an insulator string, attach the flat face clamp to the tower leg and the Static Ground just under the first insulator cap.

For barehand work, attach the flat face clamp to the bucket shield system and the Static Ground under the second insulator from the LIVE end.

Catalog No.	Description	Approx. Wt.
HG42301	W/Eyescrew Clamp No. G33633SJ	5 lb./2.3 kg.
C6000000	W/"T" Handle Clamp No. G33634SJ	5 lb./2.3 kg.

EHV Side-Opening Insulator Cradle





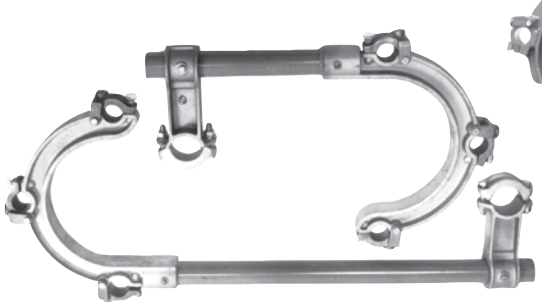
Designed specifically for selective removal of any one string in deadend bundles, double, triple or quad, the Side-Open Cradle eliminates the need of removing top strings in the bundle to get at the lower string.

Available in 9, 13 and 16-foot lengths, cradles are shipped complete with bridle for attaching to Swivel Boom, an Insulator Retaining Plate and either 15 or 31-inch Hook Assemblies. The 15-inch assembly is used for single or double deadends while the 31-inch Assembly is for removal of the bottom strings in 4-bundle deadends, and for double "V"-string assemblies.

The 9-foot Cradle is rated 500 pounds maximum load, and the 13 and 16-foot Cradles are rated at 1000 pounds maximum load.

The Insulator Retaining Plate is dual purpose, one side adaptable to 11-inch insulator bells and the opposite of the plate for 12¾-inch bells.

C4010455 INSULATOR RETAINING PLATE

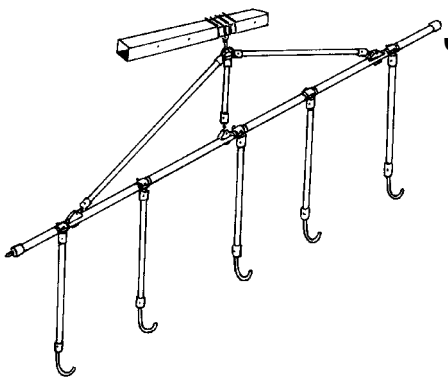


15" C4010361 **HOOK ASSEMBLIES** **31" C4010362**

Catalog No.	Description	Weight
C4010358	9' Cradle, 15" Support Hooks	93 lb./41.9 kg.
C4010359	9' Cradle, 31" Support Hooks	97½ lb./43.9 kg.
C4010356	13' Cradle, 15" Support Hooks	119 lb./53.6 kg.
C4010357	13' Cradle, 31" Support Hooks	123½ lb./55.6 kg.
C4010354	16' Cradle, 15" Support Hooks	125 lb./56.7 kg.
C4010355	16' Cradle, 31" Support Hooks	130½ lb./58.7 kg.
C4010361	15" Support Hooks, one only	10 lb./ 4.5 kg.
C4010362	31" Support Hook, one only	11½ lb./ 5.2 kg.
C4010455	Insulator Retaining Plate	7½ lb./ 3.4 kg.

Tested per OSHA & ASTM F711

J-HOOK ASSEMBLY



CAT. NO. C4020790

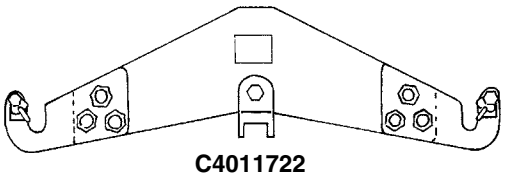
The J-Hook unit can also be used for removal of deadend insulator strings. The plastisol covered steel hook swivels on the end of a 2" x 36" Epoxiglas® pole and has a 2½" diameter pole clamp at the top end, allowing horizontal adjustment on an Epoxiglas ridgepole to varying lengths of insulator strings. This hook assembly is particularly useful in removing the bottom string in a 3-bundle insulator string. Rated working load: 250 lb. per hook.

Tested per OSHA & ASTM F711

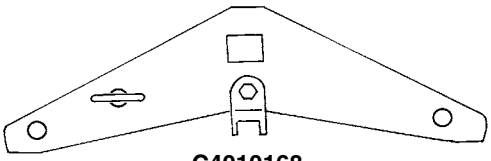
Suspension Insulator Tools

Several optional tools for relieving the load on suspension insulator strings are shown on the page. Where the same line crews work on both deadend and suspension structures, the Adjustable Strain Poles on Page 2253 can be used as the base tool for suspension insulator changeouts.

HOT-END SUSPENSION YOKES



C4011722



C4010168

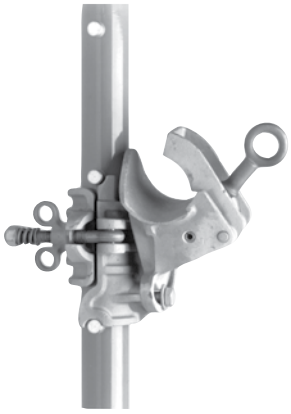
The C4011722 yoke is used with the H2947 series adjustable strain poles on page 2253. The C4010168 yoke is used with clevis strain poles on page 2257. Both yokes are fabricated from high strength aluminum plate. With a maximum load of 15,000 pounds per insulator string, this yoke has two spring loaded latches which engage and lock the pole clamp into position on the yoke, 26 inches apart center-to-center, thus providing adequate clearance for corona rings.

An eyebolt, which may be assembled on either side of the yoke, facilitate rigging.

The yoke is equipped with a swivel saddle designed to cope with the variables of suspension strings on running corners.

The saddle will rotate a full 360°. The saddle will handle conductor yoke plates up to 1" in thickness.

Catalog No.	Description	Weight
C4011722	Strain-Pole Suspension Yoke with 3½" Swivel Saddle	26 lb./11.7 kg.
C4010168	Clevis Pole Suspension Yoke with 3½" Swivel Saddle	23 lb./10.4 kg.



M47241

ADJUSTABLE HOOK ASSEMBLY

The adjustable Hook Assembly can be used with the adjustable strain poles shown on page 2253 as a direct method of relieving the load on a suspension string. The conductor clamp has a contoured seat with a trapping gripper and is operated by an eyescrew. Conductor range is 1⅛" to 2½" diameter. The hook can be positioned every 6" on the strain pole. The hook is self-aligning within a range of 45° either side of vertical. The maximum load is 3,500 pounds.

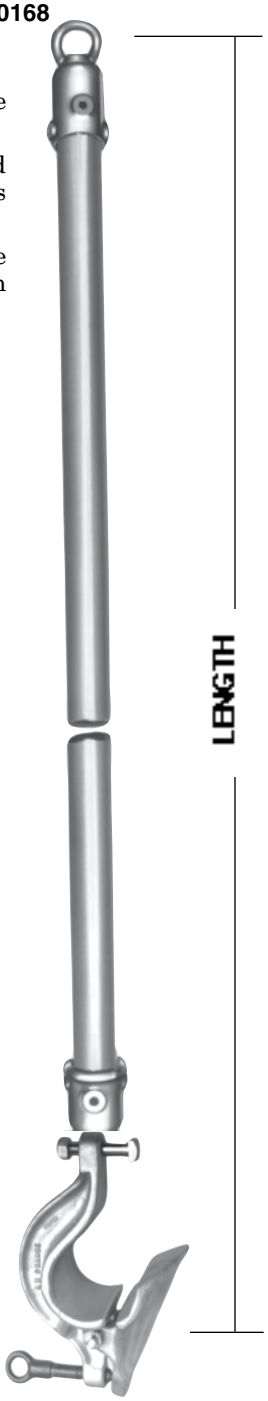
Catalog No.	Description	Weight
M47241	Adjustable Hook Assembly	6 lb./2.7 kg.

For Adjustable Strain Pole (See Page 2253) or Clevis Pole (See Page 2257)

SUSPENSION LINK STICKS

The Suspension Link Stick is designed for use on conductors from 1" to 2½" diameter and can be used with various types of takeup devices at the structure end. The lip of the hook, actuated by an eye screw, swivels to accommodate various conductor sizes. The maximum load is 6,500 pounds.

Catalog No.	Pole Dia. & Length	Weight
H472084	1½" x 84"	14 lb./6.3 kg.
H472096	1½" x 96"	16 lb./7.2 kg.
H4720114	1½" x 114"	18 lb./8.1 kg.

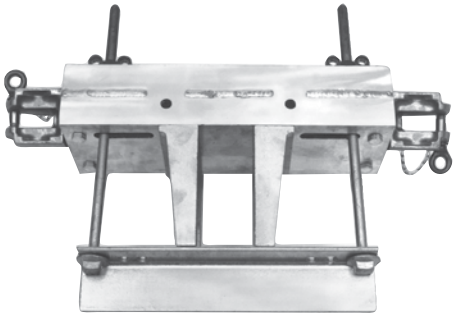


Suspension Link Stick

Tested per OSHA & ASTM F711

STRUCTURE YOKES

NOTE: Yokes shown here use Adjustable Strain Poles and small trunnions on page 2252 through 2253.



H478322

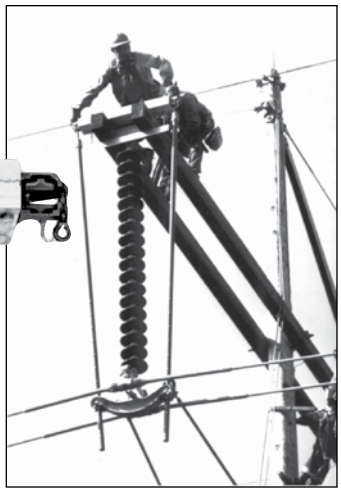
TOWER YOKE

The Tower Yoke fits over the tower arm, serving as a support for the Chance Strain Poles to relieve tension on the suspension insulator string through the "hot end" yoke and the conductor yoke plate.

The legs of the yoke are so designed that they can be adjusted to fit most tower structure configurations. Still, it is recommended that the design drawings of the tower arms be submitted to Hubbell Power Systems, Inc. with the Tower Yoke order for engineering evaluation to assure a proper fit. Swivel trunnions are 26" center to center.

Catalog No.	Description	Max. Load	Weight
H478322	Tower Arm Yoke	12,000 lb.	42½ lb./19.1 kg.

C4000219



H-FRAME YOKE

The H-Frame Crossarm Yoke is similar to the Tower Yoke in design and application. The two clamp bolts which secure the yoke to the double plank crossarms may be adjusted to three center-to-center positions (9", 11" and 13") to fit various arm sizes; vertical take-up on the crossarm is from 9" to 12". The swiveling trunnion brackets are located 26" center-to-center. Longer braces are available on special order.

Catalog No.	Description	Max. Load	Weight
C4000219	H-Frame Crossarm Yoke	12,000 lb.	41 lb./18.5 kg.

C4000445

STEEL ARM YOKE

Designed for use on the arm of a steel pole, the Steel Arm Yoke mounts over a ¾-inch-thick end plate as shown at left. Swivel castings in the end of the yoke assure proper alignment of the Chance Strain Poles to the conductor-end yoke. The load rating is dependent upon the angle of the end plate on the arm; 45° is maximum angle allowed with a maximum load of 9,000 pounds. In-line loading of the yoke permits a maximum load of 15,000 pounds. Bronze pins place the strain poles 21 inches apart, center-to-center. A lifting eye is cast into the top of the yoke for the purpose of landing the yoke upon the end plate of the pole arm.

Catalog No.	Description	Max. Load	Weight
C4000445	Steel Arm Yoke	15,000 lb.	14¾ lb./6.6 kg.

T4000838

STEEL ARM BRACKET

The steel arm bracket is used with the C4000445 (steel arm yoke) where the steel arm is not equipped with an end plate. The bracket is made of heat treated aluminum and is complete with a wheel binder. The steel arm bracket serves the same purpose as an end plate to support the yoke assembly.

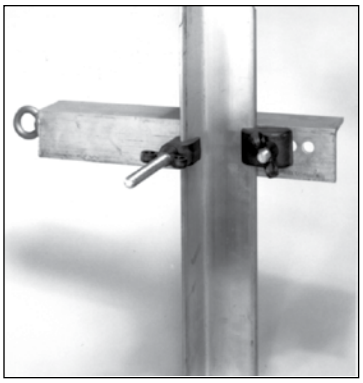
Catalog No.	Description	Max. Load	Weight
T4000838	Steel Arm Bracket	15,000 lb.	15 lb./6.8 kg.

TOWER GIN

• All-Purpose Handline Gin

The aluminum angle Tower Handline Gin is 3' x 3" x ¼" with an aluminum-weld end-plate securing a bronze, free-swivel butt ring. Snatch blocks hooked into the butt ring keep handlines from dragging over the tower structure, giving clearance to tools in transit.

Bronze mounting hooks of the Tower Gin are held in place with bronze wing nuts on plated steel bolts. Hook adjustment will fit tower angle from 1¾" x 1¾" up to 6" x 6". Maximum load for the gin is 500 pounds.



Catalog No.	Description	Length	Weight
M1979	Tower Handline Gin	21"	6¾ lb./3 kg.

TROLLEY POLE SUSPENSION INSULATOR TOOL

The Trolley Pole Assembly serves as a convenient method of rolling a string of suspension insulators into the structure so that the damaged units can be replaced. The tool can be fastened, horizontally under the tower arm, using tower type wire tong saddles.

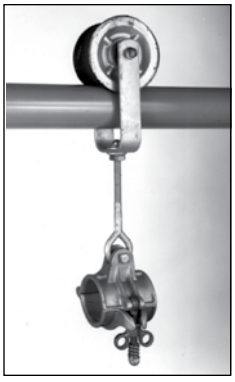
Two types of Trolley Wheel Units are available with single (H47234) or tandem (C4000152) wheels. The tandem wheel units are used on extremely long strings of insulators for better weight distribution. Both trolley wheel types will roll on either a 2½" or 3" Epoxiglas® pole.

The slotted Suspension Insulator Attachment bolts to the end of the Trolley Pole and can be fitted under the top insulator. So applied, the entire string can be lifted free by a slight down pressure on the structure end of the Trolley Pole.

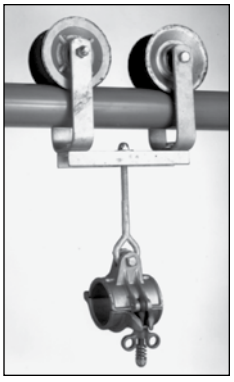
The insulators are returned to position on the Trolley Pole after the necessary changeouts have been made.

Suitable for 10½" disc insulators on one side and 10¾" disc insulators on the other

H47232



H47234



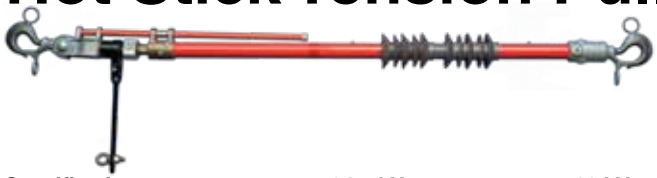
C4000152

H4721112 (Tested per OSHA & ASTM F711)

TROLLEY POLE COMPONENTS PARTS

Catalog No.	Description	Weight
H47232	Fork Suspension Tool Attachment for 2½" Pole	15½ lb./7.0 kg.
H4721112	Trolley Pole (2½" x 12')	18½ lb./8.3 kg.
H47234	Single Trolley Wheel with 2½" Pole Clamp	6 lb./2.7 kg.
C4000152	Tandem Trolley Wheel with 2½" Pole Clamp	13 lb./5.9 kg.

Hot Stick Tension Puller 34.5 kV Ø-Ø and 69 kV Ø-Ø



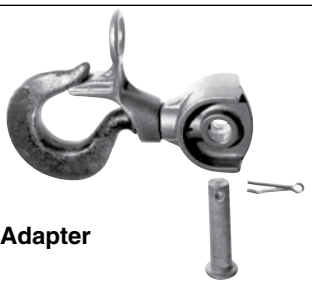
Specifications:	34.5 kV	69 kV
Capacity	4,000 lb.	4,000 lb.
Working range	58-70 in.	66-76 in.
Maximum take-up	12 in.	12 in.
Insulation		
Maximum	43 in.	51 in.
Minimum	31 in.	39 in.
Length	60 in.	66 in.

The Hotstick Tension Puller is equipped with rings so that it can be handled and operated with the Chance Grip-All Clampstick or with rubber gloves.

Both models feature a hook on each end that is non-swiveling for positive hotstick operation and has a spring-loaded gate which will rotate 135 degrees left or right from closed position.

For operational ease the selector lever on the ratchet wrench of these two models has been made larger to accommodate hotsticks.

Catalog No.	Description	Weight
C4000574	34.5 kV, Safety Hook both ends	12 lb. / 5.4 kg.
C4000575	69 kV, Safety Hook both ends	12½ lb./ 5.6 kg.



Tension Puller Hook Adapter
C4000573

The Hook Adapter is a field-replacement item for adding the catch and the hotstick eye. The Adapter is interchangeable with hooks of both Tension Pullers above.

Tie Back Clamp
C4000600
Conductor Range:
#4 to 397.4 kcmil ACSR

The Tie Back Clamp installs with a Grip-All clampstick. It is used with a Tension Puller to keep the tail of a conductor out of the work area by tying it back to the main line after it has been cut. The clamp also may be used to hold a jumper on the main line while applying a compression connector.

Tension Puller Switching Tool

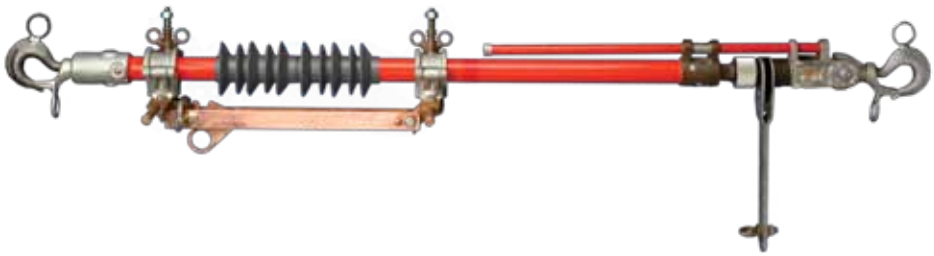
35 kV Ø-Ø, 600 amps cont, 150 kV BIL
Tested per OSHA & ASTM F711

Tension Puller Switching Tool combines line-tension disconnect switch with Epoxiglas® insulated tool as above. Weathershed polymer skirts are bonded to 1½"-diameter pole. Compression clamps secure switch hot parts to pole. Bypass stud (½"-dia.) at each end of switch accepts 3"-wide jumper clamps. Copper switch blade with silver-plated contacts opens to 90°, or 180° with stop pin removed. Galvanized hooks are provided for operation by loadbreak device.

With handling rings, this tool may be operated by either hot-line tools or rubber-glove techniques. Illustrated instructions give procedures for installation, operation and maintenance.

Hooks on ends are fixed so as not to swivel. Latch on hooks has a spring-loaded gate able to rotate 135 degrees left or right from the closed position.

Selector lever on ratchet wrench is extra large for easier operation by hot line tools.



Operate disconnect switch with **only** a portable loadbreak tool.

Hot line jumpers installed on conductor and tool's bypass studs create parallel circuit. Conductor is securely restrained before cut. Long tail is clamped back onto itself. Portable loadbreak device may be used to open switch. For additional recommendations, refer to ANSI C37.35 IEEE Guide for the Application, Installation, Operation and Maintenance of High Voltage Air Disconnecting and Load Intrerrupter Switches.
NOTE: Specifications are same as for 34.5 kV unit above.

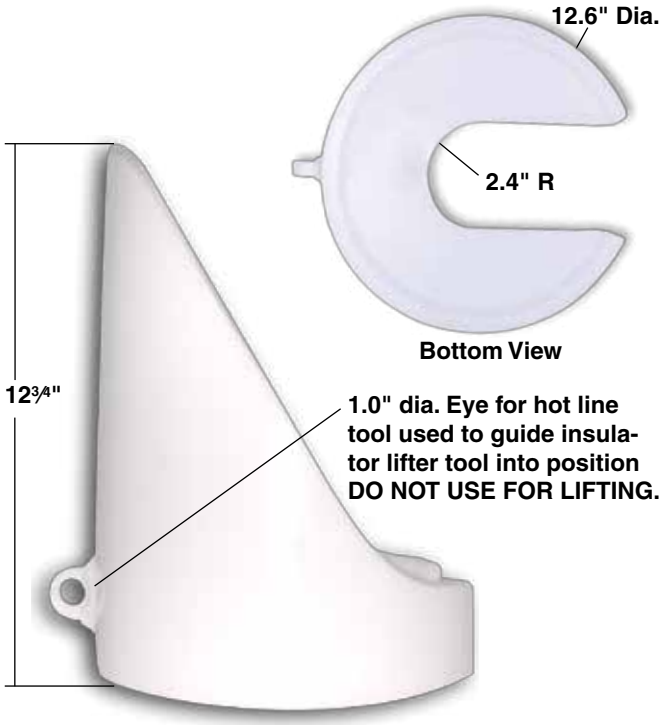
Catalog No.	Description	Weight
C4001907	Tension Puller Switching Tool	22 lb. / 9.9 kg.

Suspension Insulator Lifter Tool
•For up to 12.5"-diameter insulators

High-density polyethylene tool is designed to pick up suspension-insulator strings on electric transmission lines during live-line maintenance.

TO THOSE WHO CLIMB™

***NOTE: When tying appropriate knot in load line passed through hole above, leave enough tail to encircle insulator twice and tie back onto load line. Use only a capstan hoist or winch/hoisting equipment specifically designed for the task to raise/lower insulator strings.**



Ordering Information

Catalog No.	Rated Working Load	Approx. Wt.
PSC4002927	400 lb. / 181.4 kg.	13.5 lb./6.1 kg.

IMPORTANT:
1. Designed for live line work, this tool must be visually inspected and cleaned with an appropriate agent before each use.
2. Do not use for construction procedures such as installing a string of insulators complete with traveler and ropes.