



NO. 20 AC & DC YOUNGSTOWN POWER LIMIT SWITCH SIMPLEX (Type CG) AND DUPLEX (Type CCG) SERIES B

INSTRUCTIONS

INSTALLATION

The #20 YOUNGSTOWN POWER LIMIT SWITCH for crane hoist service must be mounted in the horizontal position. The weight arm can be bolted to the operating shaft in either of two positions, 180° apart. The limit switch is normally assembled for right hand operation with horizontal mounting. It is desirable to mount the limit switch so that the suspended weight is directly over the hookblock with one of the hoisting idler cables passing through the bakelite guide tube on the suspended weight. This tube is split and clamped with "U" straps to facilitate installation. A bracket or platform should be attached to the hookblock for the purpose of lifting the weight.

A special 90° weight arm may be optionally supplied. If the limit switch cannot be so mounted that the suspended weight hangs directly over the hookblock, an auxiliary sheave and this 90° weight arm can be used. Since the steel cable is 3/8" in diameter, it is recommended that the sheave be at least 8" in diameter. The bearings in the sheave should be as free from friction as possible at all times.

CAUTION should be taken in mounting the limit switch to keep the space clear under the heavy end of the weight arm, otherwise obstructions may interfere with the switch operation. When the switch is floor-mounted, it is recommended that an opening be cut in the floor at this point.

FOR LEFT HAND OPERATION, turn the weight arm 180° about the vertical line through the shaft center and change wiring connections in accordance with the wiring diagram.

The weight hangs down a maximum of 118" when the standard amount of cable is used. The limit switch trips when this weight is lifted approximately 4" and resets when the weight is lowered to a point approximately 3/8" above the normal position.

Since no special connections are required between the limit switch and the hoist controller, no additional trolley bars are required along the crane girders.

DUPLEX OPERATION

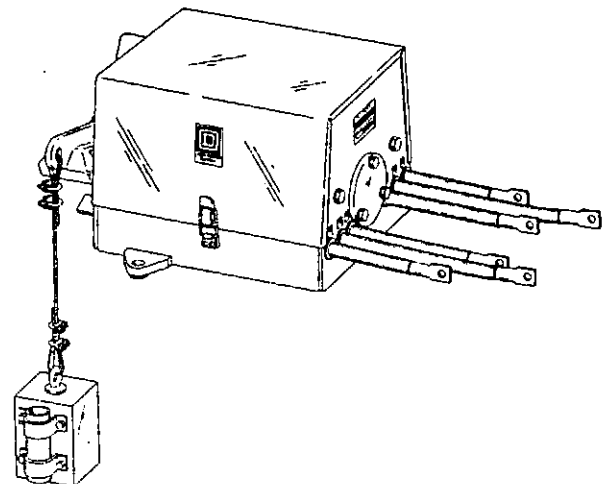
When two motors operate in parallel on a single hoist, a duplex limit switch is recommended in which there are two complete sets of electrical contacts operated by heavier weights and a stronger spring. Twelve leads are brought out at one end of the duplex limit switch.

MAINTENANCE

Contacts should be checked periodically for contact wear allowance (follow-up). The contacts should be replaced when the wear allowance approaches zero. No adjustment of contacts is necessary beyond proper alignment. Be sure the cover is always replaced after inspection.

LUBRICATION

No lubrication is required as bearings are sealed cartridge ball bearings.



CRANE SERVICE RATING MAX. H.P. (ONE MOTOR)

230V D.C.	550V D.C.	220V A.C.	440/550V A.C.
100	100	100	200

OPERATION D.C.

The #20 Youngstown Power Limit Switch has double pole, double throw contacts. When the switch is "tripped" by overtravel of the hoist, two normally closed contacts are opened to remove power from the motor and two normally open contacts are closed to provide a dynamic braking circuit. In order to reset the limit switch, the hook-block must be lowered by the controller until the suspended weight has traveled to the reset position.

OPERATION A.C.

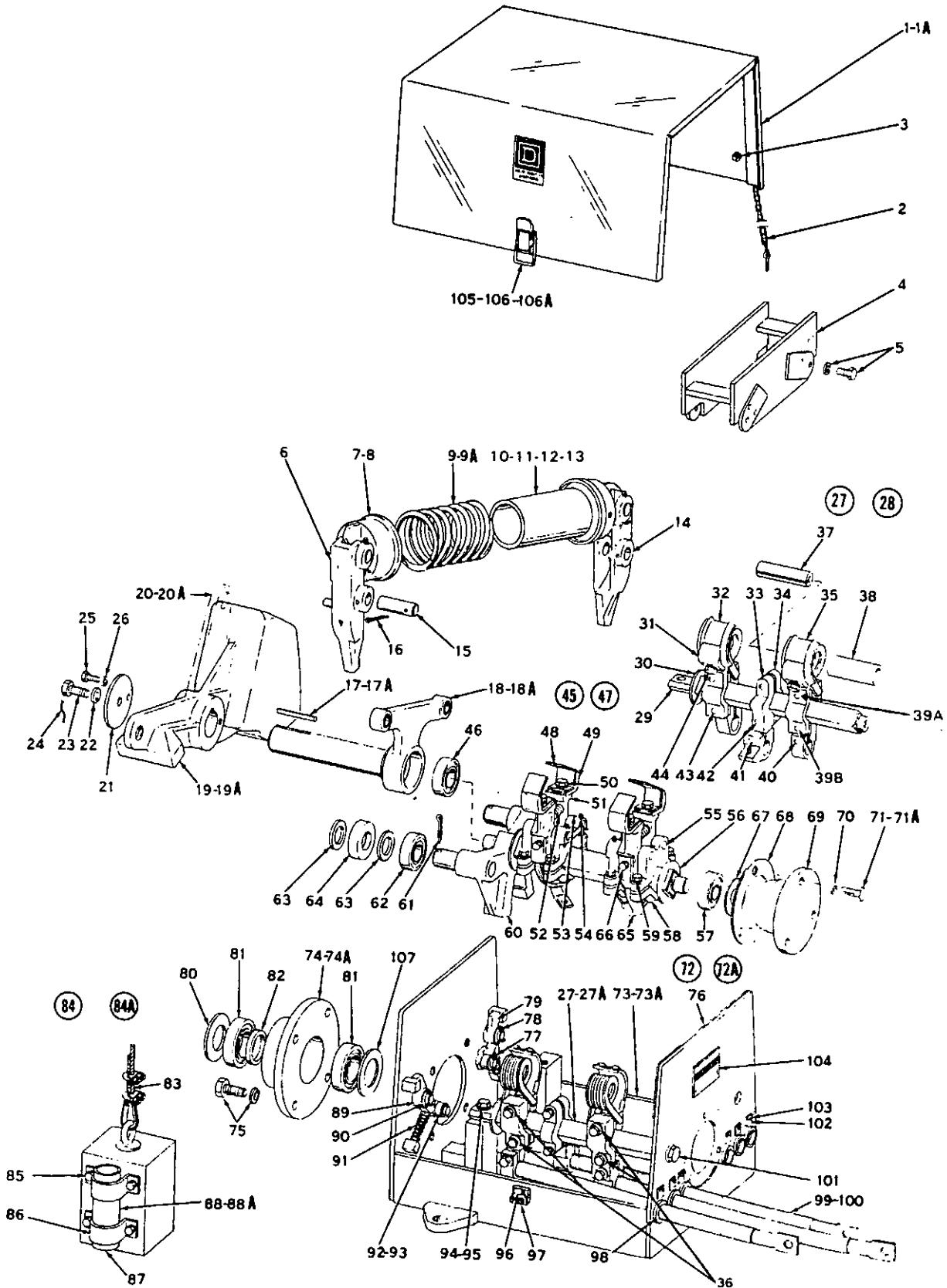
The #20 Youngstown Power Limit Switch has double pole, double throw contacts. Tripping the limit switch opens two leads to the motor and brake, removing power and allowing the brake to set.

CAUTION

The Youngstown Power Limit Switch is intended primarily as an emergency equipment which can be depended upon to prevent the crane operator from running the hook-block into the hoisting drum. It is not intended to take the place of the off-point on the controller. The operator should aim to stop hoisting before the final limit is reached. Repeated unnecessary operation of the switch because of carelessness in this regard will result in excessive burning and wear on the contact tips.



NO. 20 AC & DC YOUNGSTOWN POWER LIMIT SWITCH
SERIES B





**NO. 20 AC & DC YOUNGSTOWN POWER LIMIT SWITCH
SERIES B**

Item No.	Part No.	Description	Simplex No. Req'd.	Duplex No. Req'd.	Item No.	Part No.	Description	Simplex No. Req'd.	Duplex No. Req'd.							
1	A5-1066-034-50	Hood (Includes Items 105 & 106)	1		34	X-2141	Clamp	2	4							
1A	A5-1066-034-51	Hood (Includes Items 105 & 106A)		1	35	A5-1066-030-52	Blowout Coil	2	4							
2	A5-1066-045-50	Hood Chain (Includes S-Hooks & Eye-Bolts)	1	1	36	B5-0512-001-21	Insulating Washer	8	16							
3	23001-00200 23701-00200	1/4"-20 H. St. Nut & Lk. Washer		2	37	A5-1066-014-01	Blowout Core	4	8							
4	A5-1066-010-50	Arc Barrier	2	4	38	B5-0512-052-05	Blowout Core Insulator	4	8							
5	21401-20200 23701-00200	1/4"-20 x 5/8" H. St. Cap Screw & Lk. Washer	8	16	39A	21401-22680 21401-22640	5/16"-18 x 2 1/2" H.I. Cap Screw, Lk. Washer, & Std. I. Washer	4	8							
6	X-2118-A	Trip Lever, right side	1	1	39B	23701-00220 23601-00220	21401-24560 3/8"-16 x 1 3/4" H.I. Cap Screw, Lk. Washer, & Std. I. Washer	4	8							
7	X-2281-A	Spring Seat, Complete with Bearing, Item 8	1	1	40	23701-00240 23601-00240	21401-24400 3/8"-16 x 1 1/4" H.I. Cap Screw, Lk. Washer, & Std. Washer		8							
8	29005-40241	Oilite Bearing	6	6	40A	23701-00240 23601-00240	21401-24480 3/8"-16 x 1 1/2" H.I. Cap Screw, Lk. Washer, & Std. Washer	2	4							
9	X-2187	Operating Spring	1		41	23701-00240 23601-00240	21401-22640 5/16"-18 x 2" H.I. Cap Screw, Lk. Washer, & Std. Washer	4	8							
9A	X-3187	Operating Spring		1	42	23701-00220 23601-00220	21401-22660 5/16"-18 x 2 1/4" H.I. Cap Screw, Lk. Washer, & Std. I. Washer	4	8							
10	X-2280-A	Spring Retainer, Assembly	1	1	43	23701-00220 23601-00220	21401-24280 3/8"-16 x 7/8" H.I. Cap Screw, Lk. Washer	4	8							
11					X-2117-A	Trip Lever, left side	1	1	44	A5-1066-28-50	Movable Contact Shaft Assembly	1				
12									X-2179	Pin, for Trip Levers	4	4	45A	A5-1066-031-50	Movable Contact Shaft Assembly	1
13													24201-08480	1/8" x 1 1/2" Cotter Pin	4	4
14	X-2194	Key, for Operating Arm & Weight Arm	1	1	47	A5-1066-030-50	Movable Contact Assembly	2								
15					X-2261	Key, for Operating Arm & Weight Arm	1	1	48	A5-1066-008-01	Arc Horn	4				
16	X-2313-A	Operating Arm, Complete with Bearings, Item 8	1	1					†49	A50005-010-01	Contact Tip	4				
17					X-2341-A	Operating Arm, Complete with Bearings, Item 8	1	1	50	23701-00240 23601-00220	3/8"-16 x 7/8" H.I. Cap Screw, Lk. Washer, & 5/16" Std. I. Washer	4				
18	X-2329-A	Weight Arm, for Vertical Reset Cable Operation	1	1					51	X-2139	Auxiliary Arm	4				
19					X-2349-A	Weight Arm, for Vertical Reset Cable Operation	1	1	†52	X-2188	Contact Spring	2				
20	X-2331-A	Weight Arm, for Horizontal Reset Cable Operation	1	1					53	X-2138	Auxiliary Arm Bracket	2				
21					X-2351-A	Weight Arm, for Horizontal Reset Cable Operation	1	1	54	24201-06320	3/32" x 1" Cotter Pin	4				
22	X-2324	Cup Washer	1	1					55	X-2180	Auxiliary Arm Pin	4				
23					23701-00280	1/2" Lk. Washer	1	1	56	X-2229-A	Shaft Insulator	1				
24	X-2319	1/2" Spl. Cap Screw	1	1					56A	A-2258-A	Shaft Insulator	1				
25					X-2222	3/8" Spl. Cap Screw	1	1	57	29002-16300	Bearing (Same as Item 46)	1				
26	23701-00240	3/8" Lk. Washer	1	1					58	X-2140	Clamp	4				
27					A5-1066-029-50	Stationary Contact Shaft Assembly, R.H.	1	1	59	21401-22400 23701-00220	5/16"-18 x 1 1/4" H.I. Cap Screw & Lk. Washer	8				
27A	A5-1066-032-50	Stationary Contact Shaft Assembly, R.H.	1	1					60	X-2314-A	Rocker Arm Assembly	1				
28					A5-1066-029-51	Stationary Contact Shaft Assembly L.H. (Same as Item 27, except assembled in reverse)	1	1	60A	X-2342-A	Rocker Arm Assembly	1				
28A	A5-1066-032-51	Stationary Contact Shaft Assembly L.H. (Same as Item 27A, except assembled in reverse)	1	1					61	24201-08480	1/8" x 1 1/2" Cotter Pin	2				
29					X-2150	Shaft	2	2	62	29002-16300	Bearing (Same as Item 46)	2				
29A	X-2243	Shaft	2	2					*63	S-0166	Washer	4				
30					X-2228-A	Shaft Insulator	2	2	64	29005-63640	Roller	2				
30A	X-2257-A	Shaft Insulator	2	2					†65	X-2109A	Connector	2				
†31					A50005-010-01	Contact Tip	4	8	66	21401-24320 23701-00240	3/8"-16 x 1" H.I. Cap Screw & Lk. Washer	4				
32	A5-1066-030-51	Blowout Coil	2	4					67	X-2334	Washer	AR				
33					X-2145	Terminal Bracket	2	4	68	X-3354	Shim	AR				
									69	X-2316	Bearing Housing	1				
					70	23701-00240	3/8" Lk. Washer	3								
					71	21401-24240	3/8"-16 x 3/4" H. St. Cap Screw	3								
					71A	21401-24280	3/8"-16 x 7/8" H. St. Cap Screw	3								

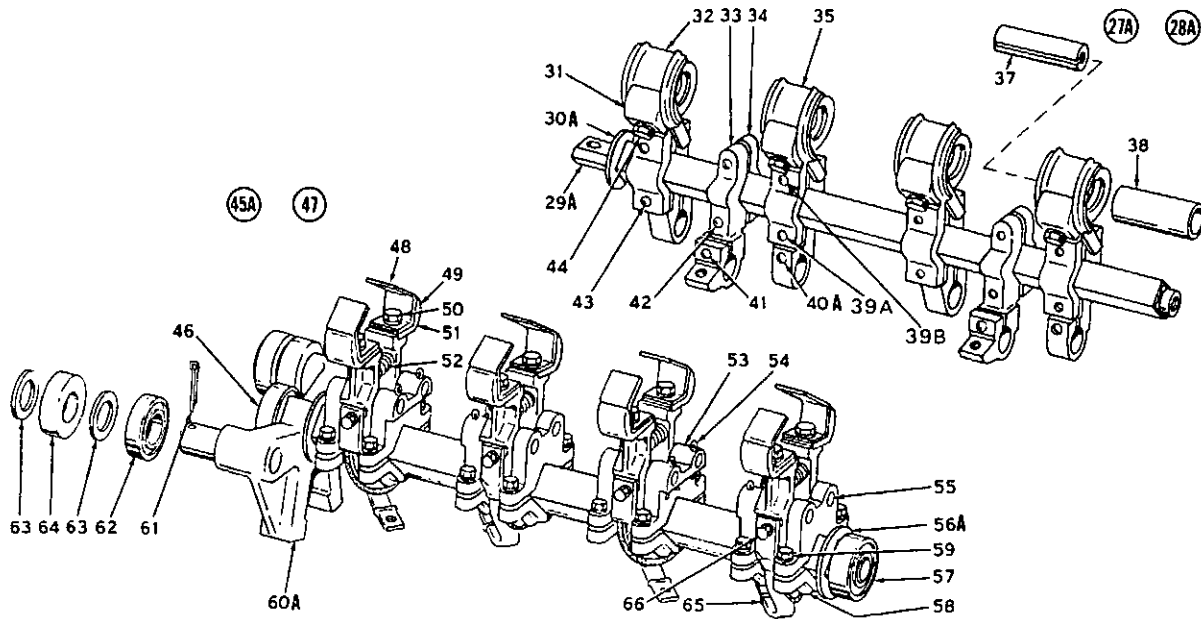
†Essential Parts for General Maintenance
*Minor revision since previous issue.

ADVISE NAMEPLATE MARKING WHEN ORDERING PARTS

SQUARE D COMPANY



NO. 20 AC & DC YOUNGSTOWN POWER LIMIT SWITCH
SERIES B



CONTACT ARM ASSEMBLIES FOR DUPLEX LIMIT SWITCH*

Item No.	Part No.	Description	Simplex No. Req'd.	Duplex No. Req'd.	Item No.	Part No.	Description	Simplex No. Req'd.	Duplex No. Req'd.
72	D5-1066-037-50	Frame Assembly	1		89	X-2119-A	Locking Arm, left side, Complete with Bearing, Item 8	1	1
72A	D5-1066-041-50	Frame Assembly		1	90	X-2170	Washer	2	2
73	D5-1066-037-51	Frame (Includes Items 96 & 97)	1		†91	X-2276	Locking Arm Spring	2	2
73A	D5-1066-041-51	Frame (Includes Items 96 & 97)		1	92	X-2173	Washer	2	2
74	X-2315	Bearing Housing	1		93	X-2175	Roller	2	2
74A	X-2343	Bearing Housing		1	94	21402-29400	1/2"-20 x 1 1/4" H. St. Cap Screw	2	2
75	21402-29400	1/2"-20 x 1 1/4" H. St. Cap Screw & Lk. Washer	4	4	95	23701-00280	1/2" Lk. Washer	2	2
76	A5-1066-039-01	1/32" Asbestos Insulator	1	1	96	29499-00800	Hood Fastener Strike	2	4
77	24201-06240	3/32" x 3/4" Cotter Pin	2	2	97	21417-16120	#10-24 x 3/8" Self-Tapping Screw	4	8
78	24201-06320	3/32" x 1" Cotter Pin	2	2	98	X-2163	Grommet	6	12
79	X-2120-A	Locking Arm, right side, Complete with Bearing, Item 8	1	1	99	A5-1066-012-50	Cable, 14" Long	6	6
80	X-2318	Washer	1	1	100	A5-1066-012-51	Cable, 24" Long		6
81	29002-37320	Bearing	2	2	101	21401-24320	3/8"-16 x 1" H. St. Cap Screw & Lk. Washer	2	2
82	X-2317	Spacer	1	1	102	203	Identification Plate	6	6
83	X-2125-A	Wire Rope (includes Clamps & Thimbles)	1	1	103	21008-04060	#4 x 3/16" Drive Screw	6	6
84	X-2126-A	Suspended Weight Assembly		1	•104	A5-1139-179-01	Nameplate	1	
84A	X-2254-A	Suspended Weight Assembly		1	105	29499-00500	Spring Catch	2	4
85	21401-24320	3/8"-16 x 1" H.I. Cap Screw & Lk. Washer	4	4	106	24101-12080	3/16" x 1/4" Oval Hd. Semi-Tub. Rivets	4	
86	X-2159	Clamp	2	2	106A	24101-12100	3/16" x 5/16" Oval Hd. Semi-Tub. Rivets		8
†87	X-2167	Rope Guide	2	2	107		Shim	2	2
88	X-2129-A	Weight	1						
88A	X-2253-A	Weight		1					

†Essential Parts for General Maintenance
•Minor revision since previous issue.