



## TYPE 4011 AC DYNAMIC LOWERING CONTROL FOR HOIST SERVICE



This AC Dynamic Lowering hoist motion controller provides braking action by applying a single-phase connection to the primary of a three-phase wound rotor motor. It is recommended where slow lowering speeds are not required for overhauling loads of 50% or more.

Fire speed points are provided for hoisting. The first-point hoist applies weak torque for hooking on, slack cable take-up and light loads. Successive hoist points continue to cut out secondary resistors and increase motor torque.

Lowering is controlled by three master switch points. In the first-point lowering, single-phase power is applied to the motor primary with a dynamic braking connection. An overhauling load will lower at a speed depending on the load, but a non-overhauling load will not lower. On second-point lowering, weak down torque drives down non-overhauling loads and permits accurate inching of light loads.

If the motor accelerates to 80% speed, the last accelerator closes and drives the load down in regeneration. This prevents motor overspeeding with an overhauling load on the hook. The third-point lowering accelerates the motor to full speed similar to full-speed hoisting.

Type 4011 ac dynamic lowering control panels are suitable for use with ac wound rotor motors on crane hoist drives.

Type 4011 controllers are for use on hoist or other overhauling drives that do not use mechanical or electric load brakes, and where accurate positioning and slow steady speeds are not required.

Panels are arranged for use with a power limit switch and separate ac or rectifier operated dc brakes.

Suitable for all NEMA and CMAA service classes.

Recommended for: NEMA service Class I, CMAA service Classes A1, C, D, E, F.

### MATERIAL LIST FOR TYPE 4011 SINGLE

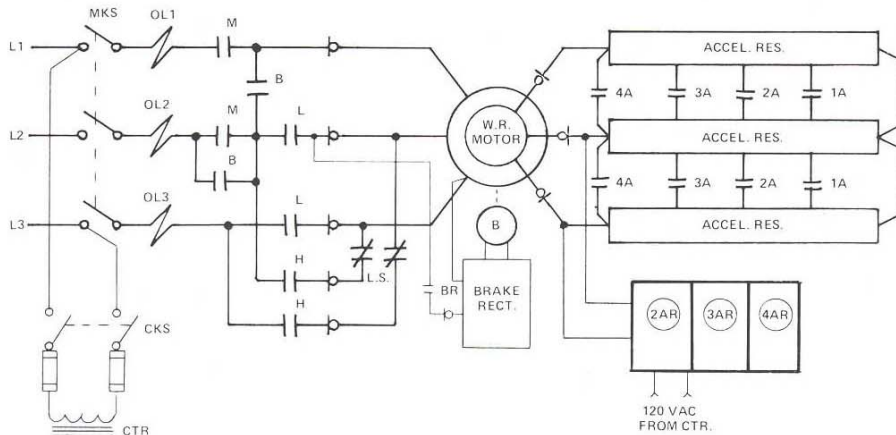
### MOTOR CONTROLLER WITH PROTECTION

- |   |   |
|---|---|
| 1 — Three pole knife switch.                                      | 2 or 3 or 4 or 5 — Frequency relays.                          |
| 1 — Two pole fused control knife switch.                          | 1 — Control circuit transformer 480-240/240-120V single phase |
| 3 — Magnetic overload relays, inverse time.                       | 1 — Control circuit rectifier.                                |
| 1 — Two pole mainline contactor.                                  | 1 — Undervoltage relay.                                       |
| 2 — Two pole directional contactors with mechanical interlock.    | 1 — Brake relay.  |
| 1 — Two pole dynamic braking contactor with mechanical interlock. | 1 — Timing relay.   |
| 3 or 4 or 5 or 6 — Two pole accelerating contactors.              |   |

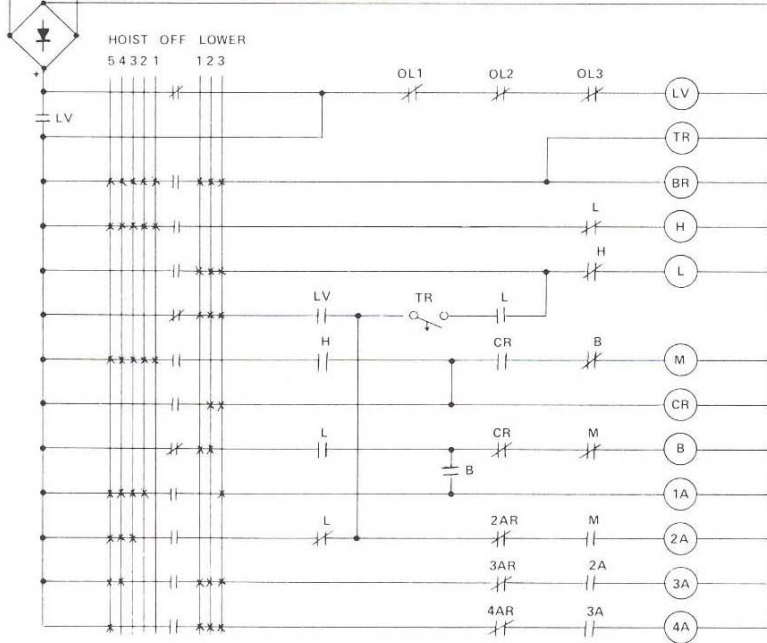
\* Replaces Catalog 4000, Oct. 1980

# TYPE 4011 AC DYNAMIC LOWERING

## ELEMENTARY DIAGRAM FOR HOIST CONTROL

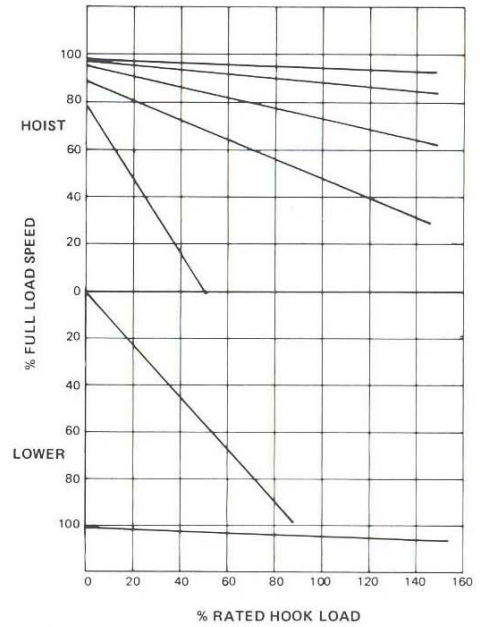


CON- FACTOR	HOIST					O F	LOWER		
	5	4	3	2	1		1	2	3
H	X	X	X	X	X				
L						X	X	X	
B						X			
M	X	X	X	X	X				
1A	X	X	X	X		X	X	X	
2A	X	X	X				X	X	
3A	X	X					X	X	
4A	X						X	X	



X = DENOTES CONTACTS CLOSED  
CONTACTORS L AND H, H AND DB, DB AND M ARE MECHANICALLY INTERLOCKED.

TYPICAL CRANE PERFORMANCE CURVES  
TYPE 4011 AC DYNAMIC LOWERING CONTROL



CURVES ARE BASED ON AN ASSUMED HOIST DRIVE EFFICIENCY OF 80%



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