TYPE 4012 REVERSING CONTROL
FOR USE WITH MECHANICAL LOAD BRAKE FOR HOIST SERVICE

An effective hoist controller for applications where speeds can vary with the load and frequent lowering is not required. Timing devices or frequency responsive relays for accelerating contactors provide smooth acceleration control.

The first hoist position of the master switch provides low torque for taking up slack cable and hoisting light loads. Subsequent master switch points allow additional contactors to close until the desired hoisting speed is attained. Movement of the master switch in the lowering direction produces similar results. The load is driven downward against the retarding action of the mechanical load brake and timed or frequency responsive accelerating relays provide smooth acceleration.

Type 4012 reversing control panels are suitable for use with ac wound rotor motors on crane hoist drives.

Type 4012 controllers are for use on hoists that are equipped with a mechanical load brake or a means of providing control of overhauling loads. These controllers provide good speed control hoisting and lowering, within the capability of the mechanical load brake.

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 4012 SINGLE MOTOR CONTROLLER WITH PROTECTION

1 — Three pole knife switch.
1 — Two pole fused control knife switch.
3 — Magnetic overload relays, inverse time.
1 — Two pole mainline contactor.
2 — Two pole directional contactors with mechanical interlock.
3 or 4 or 5 or 6 — Two pole accelerating contactors.

2 or 3 or 4 or 5 — Frequency relays.
1 — Control circuit transformer 480-240/240-120V single phase
1 — Control circuit rectifier.
1 — Undervoltage relay.

TYPE 4012 REVERSING HOIST MECHANICAL LOAD BRAKE

ELEMENTARY DIAGRAM FOR HOIST CONTROL
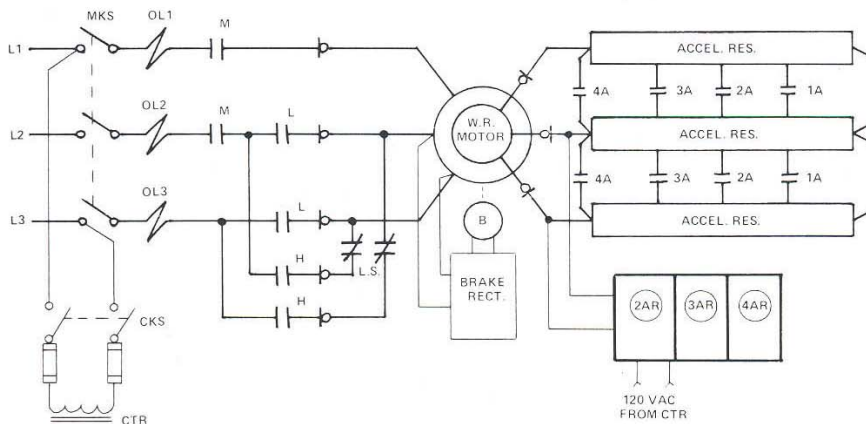
CONTACTOR SEQUENCE												
CON-TACTOR	HOIST					O F F	LOWER				
	5	4	3	2	1		1	2	3	4	5
H	X	X	X	X	X						
L							X	X	X	X	X
M	X	X	X	X	X		X	X	X	X	X
1A	X	X	X					X	X	X	X
2A	X	X	X						X	X	
3A	X	X								X	X
4A	X										X
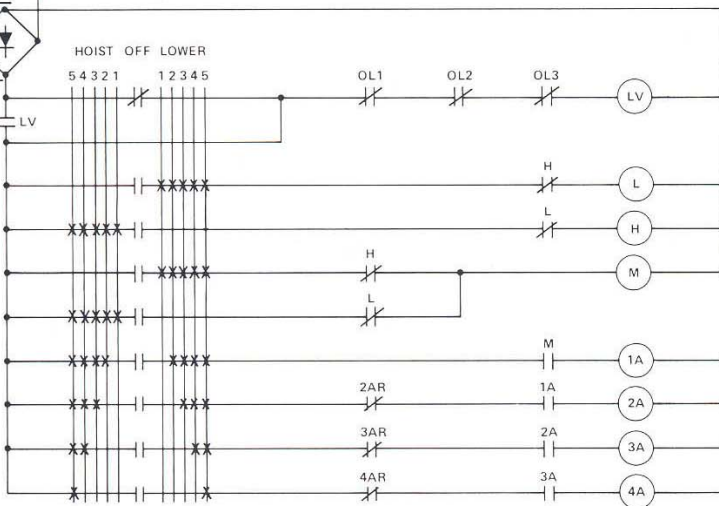
X = DENOTES CONTACTS CLOSED

CONTACTORS H AND L ARE MECHANICALLY
INTERLOCKED.

TYPICAL CRANE PERFORMANCE CURVES
TYPE 4012 REVERSING CONTROL FOR
USE WITH MECHANICAL LOAD BRAKE
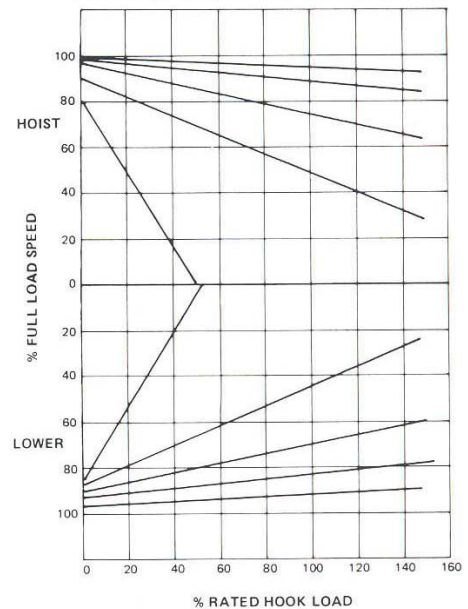
CURVES ARE BASED
ON AN ASSUMED HOIST
DRIVE EFFICIENCY OF 80%

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